

EXHIBIT 46

Page 1

1 ANDREW JOHN LEGG

2 UNITED STATES DISTRICT COURT
3 DISTRICT OF MINNESOTA

4 - - - - -
5 In re Bair Hugger Forced
6 Air Warming Products
Liability Litigation,

7 MDL No. 15-2666 (JNE/FLN)
8 - - - - -
9 - - - - -
10

11 VIDEOTAPED DEPOSITION OF
12 ANDREW JOHN LEGG
13 - - - - -
14

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17 Taken Thursday, December 1st, 2016
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24 Reported By: Victoria Davies
25 Job No: 115949

Page 2

1 ANDREW JOHN LEGG
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 4 APPEARANCES:
 5 THE EXAMINER
 Mr. Allen Dyer
 6
 7 SERJEANTS' INN CHAMBERS
 8 85 Fleet Street
 London EC4Y 1AE, UK
 By: Jonathan Holl-Allen
 For the witness
 - and -
 10 MDU SERVICES LIMITED
 One Canada Square
 London E14 5GS, UK
 By: Katie Costello
 For the witness
 13 BLACKWELL BURKE
 431 South Seventh Street
 Minneapolis, MN 55415
 By: Corey Gordon Esq.
 For 3M Company and Arizant Healthcare, Inc.
 17 KENNEDY HODGES
 4409 Montrose Boulevard
 Houston, TX 77006
 By: Gabriel Assaad Esq.
 For Plaintiffs
 - and -
 21 MESHBESHER & SPENCE
 1616 Park Avenue
 Minneapolis, MN 55404
 By: Genevieve Zimmerman Esq.
 For Plaintiffs
 25 Also present: Mr. Simon Addinsell, videographer

Page 3

1 ANDREW JOHN LEGG
 2
 3
 4 I N D E X
 5 LEGAL ARGUMENT re SENIOR MASTER
 FONTAINE'S ORDER 6
 6 ANDREW JOHN LEGG Affirmed 22
 7 EXAMINED by MR. GORDON 22
 8 EXAMINED by MS. ZIMMERMAN 89
 EXAMINED by MR. GORDON 111
 9 CERTIFICATE of DEPONENT 118
 10 CERTIFICATE of COURT REPORTER 119
 11 ERRATA SHEET 120
 12 EXHIBIT 1 File of documents. 27
 13 EXHIBIT 2 Curriculum Vitae of Mr. 113
 Andrew Legg.
 14
 15
 16
 17
 18
 19
 20
 21
 22
 23
 24
 25

Page 4

1 ANDREW JOHN LEGG
 2 Thursday, December, 1st, 2016
 3 THE VIDEOTAPED DEPOSITION OF ANDREW JOHN LEGG
 4 is taken on this 1st day of December 2016,
 5 at The Hilton Sheffield, Victoria Quay, Sheffield.
 6 S4 7YA. England, commencing at 11.02 a.m.
 7 THE VIDEOGRAPHER: This is the beginning
 8 of DVD 1 in volume 1 of the deposition of Andrew
 9 Legg in the matter of -- two matters here. This
 10 order to obtain evidence in the United States
 11 District Court District of Minnesota. So in the
 12 High Court of Justice Queen's Bench Division before
 13 Senior Master Fontaine, Master in Chambers, in part
 14 of the evidence of the Proceedings in Other
 15 Jurisdictions Act 1975; and in the matter of the
 16 Hague Convention of the 18th March 1970 on the
 17 taking of evidence abroad in civil and commercial
 18 matters and in the matter of a civil proceeding now
 19 pending before the United States District Court for
 20 the District of Minnesota entitled as follows: In
 21 Re Bair Hugger Forced Air Warming Products Liability
 22 Litigation, Plaintiffs, verses 3M Company and
 23 Arizant Healthcare Incorporated. The claim number
 24 in the High Court of Justice is CR2016-420. And in
 25 the District of Minnesota, it is MDL number 15-2666

Page 5

1 ANDREW JOHN LEGG
 2 (JNE/FLN).
 3 Today's date is 1st December 2016 and
 4 the time is 11.02 a.m. I have just seen that the
 5 recording equipment says "1st November", so I will
 6 have to adjust that in a second.
 7 The deposition is taking place at the
 8 Hilton Sheffield. The Court Reporter is Victoria
 9 Davies; videographer Simon Addinsell, both with TSG
 10 Reporting.
 11 Could counsel in the room please
 12 introduce themselves and state who they are
 13 representing today, please. Starting with you, sir.
 14 MR. GORDON: I am Corey Gordon. I
 15 represent the Defendants 3M and Arizant Healthcare
 16 Inc.
 17 MS. ZIMMERMAN: Genevieve Zimmerman.
 18 Represent the Plaintiffs in the American
 19 proceedings, the MDL.
 20 MR. ASSAAD: Gabriel Assaad. I also
 21 represent the Plaintiffs.
 22 MS. COSTELLO: Katie Costello. I am
 23 solicitor for Dr. Legg.
 24 MR. HOLL-ALLEN: Jonathan Holl-Allen. I
 25 am an English barrister representing Mr. Legg.

2 (Pages 2 to 5)

Page 6

1 ANDREW JOHN LEGG
 2 THE VIDEOGRAPHER: Our Court-appointed
 3 examiner is Mr. Dyer.

4 THE EXAMINER: My name is Allen Dyer and
 5 I am appointed by the order to conduct this
 6 examination.

7 Now, Mr. Gordon, before we swear the
 8 witness and begin some issues have been raised as to
 9 the wording of the order in Section (I) and Section
 10 (J). In Section (I)(d) the order purports to permit
 11 you to conduct a direct examination, or what we
 12 would call an "in-chief examination", and
 13 cross-examine and re-examine. I understand that you
 14 accept that the words "and cross-examine" appear as
 15 an error?

16 MR. GORDON: That is correct; I accept
 17 that.

18 THE EXAMINER: I think Mr. Holl-Allen
 19 accepts that is a correct interpretation?

20 MR. HOLL-ALLEN: Yes, sir.

21 THE EXAMINER: In paragraph --
 22 subparagraph (e) the order purports to restrict the
 23 Plaintiff's US Counsel to conducting an
 24 examination-in-chief of the witness. In
 25 subparagraph (f) each party is restricted to

Page 7

1 ANDREW JOHN LEGG
 2 questions which could, in my opinion, properly be
 3 asked of a party's own witness at trial. Whereas
 4 subparagraph (h) provides:

5 "For the purpose of questioning in the
 6 Examination shall be for the purpose only of
 7 eliciting and recording testimony appropriate to be
 8 given at the trial in the [US] District Court of the
 9 District of Minnesota".

10 And paragraph (j) provides for the
 11 examination to be "conducted as permitted by the US
 12 Federal Rules of Evidence".

13 Now, perhaps you could set out in the
 14 first place what your understanding of those
 15 subparagraphs of the order is?

16 MR. GORDON: Thank you.

17 My understanding was that because we had
 18 originally sought the letters rogatory from our US
 19 District Court, without objection from the
 20 Plaintiffs, we represented to the High Court that
 21 both sides, both parties, wanted the testimony of
 22 the witnesses subject to the application. During
 23 the High Court proceeding, when the Court indicated
 24 that our examination would be limited to a direct
 25 examination, we queried the Court as to whether that

Page 8

1 ANDREW JOHN LEGG
 2 would apply to the Plaintiffs as well and the Court
 3 indicated that it was her intent that the limitation
 4 applied both parties and directed that that
 5 provision be incorporated into the draft order.

6 It is our position today that we do not
 7 object to the Plaintiffs conducting what would be
 8 characterized as a "cross-examination" once we have
 9 completed our direct examination, notwithstanding
 10 the provisions of the High Court order. We would
 11 stipulate to them the Plaintiffs being permitted to
 12 conduct a cross-examination.

13 THE EXAMINER: I think it might be
 14 helpful if Mr. Holl-Allen set out his position next.
 15 You will have a full opportunity to respond.

16 Yes. Mr. Holl-Allen, you were actually
 17 at this hearing.

18 MR. HOLL-ALLEN: I was, sir. I confirm
 19 that at a hearing in front of Senior Master Fontaine
 20 on the 8th November of this year I represented not
 21 only Mr. Legg but also three other practitioners who
 22 are to come in terms of further depositions.

23 As, I think, has been accepted, or at
 24 least follows from what Mr. Gordon has said, the
 25 restriction on the type of questions that can be

Page 9

1 ANDREW JOHN LEGG
 2 asked on the face of the order is not an error; it
 3 was intended by this order that the questions to be
 4 permitted to be asked by each side would be limited
 5 to those questions that could properly be asked by
 6 way of examination-in-chief, and cross-examination
 7 is not permitted on the face of the order.

8 The only exception to that is as you,
 9 sir, yourself have identified, (d), which does make
 10 reference to cross-examination in the provision
 11 relating to questioning by Mr. Gordon on behalf of
 12 the Defendants. But as he has fairly conceded that
 13 is an error and is an inconsistency with the form of
 14 the order that was made in respect of the other
 15 practitioners.

16 So, sir ---

17 THE EXAMINER: It would be an
 18 inconsistency even if these words didn't appear in
 19 (e) and (f). It would be ridiculous in any order to
 20 allow a party examine-in-chief, cross-examine and
 21 re-examine.

22 MR. HOLL-ALLEN: Yes. So, sir, my
 23 recollection in this sense accords with that of
 24 Mr. Gordon, that the "prohibition", if you like, on
 25 cross-examination, or the restriction in the order,

Page 10

Page 11

1 ANDREW JOHN LEGG

2 which does not permit any party to cross-examine,
 3 was a matter which went by agreement on the
 4 8th November; there was no dispute about it --
 5 although, of course, I accept that the Plaintiffs
 6 were not represented at the time of that hearing.

7 My instructions, on behalf of Mr. Legg,
 8 and my position, is this: That Mr. Legg has no
 9 objection in the circumstances to Mr. Gordon
 10 proceeding today to ask questions of him which, of
 11 course, will be by way of questioning in-chief, but
 12 I do not have instructions to consent to
 13 cross-examination of Mr. Legg on behalf of the -- on
 14 behalf of the Plaintiffs.

15 THE EXAMINER: Plaintiffs.

16 MR. HOLL-ALLEN: Sir, I don't want to
 17 anticipate any approach that you may see fit to take
 18 today, but certainly my provisional position is
 19 this: That any variation of this order to permit
 20 cross-examination is a matter for the jurisdiction
 21 of the Master that made it.

22 THE EXAMINER: I cannot bury this order,
 23 that is absolutely clear. I am duty-bound to comply
 24 with it and if I can find a way through to interpret
 25 it that is another matter, but I cannot bury its

1 ANDREW JOHN LEGG

2 provisions.

3 MR. HOLL-ALLEN: That is helpful and
 4 clear, sir.

5 Sir, I note what Mr. Gordon says about
 6 the reason why the order is restricted in the way
 7 that it is. It is perhaps self-evident that
 8 whatever were and are the Defendant's purposes in
 9 restricting the order in this way, the provision,
 10 which does not permit cross-examination, affords a
 11 degree of protection my client --

12 THE EXAMINER: I understand that.

13 MR. HOLL-ALLEN: -- and I do not have
 14 instructions to consent to that protection being
 15 removed.

16 THE EXAMINER: I understand.

17 MR. HOLL-ALLEN: That is all I have to
 18 say.

19 THE EXAMINER: Thank you. Which of you
 20 wants to address me?

21 MS. ZIMMERMAN: Thank you. So, Genevieve
 22 Zimmerman on behalf of the Plaintiffs in the
 23 American Courts. Just as a preliminary statement I
 24 would like to say that the Plaintiffs have
 25 co-operated throughout this process and that we have

Page 12

Page 13

1 ANDREW JOHN LEGG

2 provided no resistance, nor have we interfered in
 3 any way with the approach that 3M and the Defendants
 4 have made to the American Courts, or to the Court
 5 here in the United Kingdom. We have not interfered
 6 in any way with the scheduling of these depositions.

7 However, we have consistently requested
 8 that we be copied on any and all communications with
 9 these third-party authors and their counsel, as well
 10 as with the High Court in the United Kingdom.

11 Despite Plaintiffs' repeated requests,
 12 the Defendants, who I might add are the applicant
 13 here in the United Kingdom proceedings, have chosen
 14 time and again to exclude the Plaintiffs from this
 15 process.

16 There are two courts with meaningful
 17 jurisdiction over these depositions, or certainly
 18 over the American lawyers that are participating in
 19 those proceedings, and that is both the High Court
 20 here in the UK and the Federal District Court for
 21 the District of Minnesota. The Plaintiffs' position
 22 is that the UK High Court order contains errors that
 23 are inconsistent with both the rules applicable here
 24 in the UK, for trial testimony, and also
 25 inconsistent with the United States' Federal Rules

1 ANDREW JOHN LEGG

2 of Civil Procedure for use at trial, and also the US
 3 Rules of Evidence.

4 Specifically focussing on the
 5 order itself, the Counsel for both 3M and for the
 6 witnesses here have noted potential errors with
 7 respect to cross-examination in section I(d). The
 8 Plaintiffs are not in a position to comment on that
 9 one way or the other, as to whether that is an error
 10 as we were not a part of these proceedings.

11 THE EXAMINER: No, but if this was solely
 12 a US Court order, do you accept that it will be an
 13 error to allow Plaintiffs' Counsel to examine
 14 direct, re-examine -- cross-examine and re-examine?

15 MS. ZIMMERMAN: The Plaintiffs?

16 THE EXAMINER: Or any party.

17 MS. ZIMMERMAN: I think typically
 18 speaking, yes, that would be inappropriate.

19 THE EXAMINER: So our procedures are in
 20 accordance on that.

21 MR. ASSAAD: Could be a misplacement as
 22 well -- there should be (d) cross-examination.

23 MS. ZIMMERMAN: Additionally, to the
 24 extent that the order allows the petitioning party
 25 (Defendants in the American litigation) to do a

4 (Pages 10 to 13)

Page 14

Page 15

1 ANDREW JOHN LEGG
 2 direct exam does not afford the Plaintiffs the
 3 ability to do a cross-exam. We also object to 3M
 4 having the ability to do a re-direct exam.

5 THE EXAMINER: Okay.

6 MS. ZIMMERMAN: Let's see.... Excuse me.
 7 I will just say that there is a fundamental --

8 THE EXAMINER: But your position, if I
 9 may try to summarize it, is that because of (h),
 10 namely that the purpose why we are here is to record
 11 trial testimony, that overrides the restriction in
 12 (e) on your being limited to examination-in-chief,
 13 so that you should be allowed to cross-examine. Is
 14 that a fair summary of your position?

15 MS. ZIMMERMAN: Precisely, sir, to the
 16 extent that some (h) says that the purpose that we
 17 are here, the sole purpose of questioning in this
 18 examination shall be for:

19 "...only for eliciting and recording
 20 testimony appropriate to be given at trial in the
 21 United States District Court for the District of
 22 Minnesota, the Plaintiffs must be afforded the
 23 opportunity to cross-examine".

24 THE EXAMINER: I understand that and the
 25 general points of the Federal Rules of Evidence.

1 ANDREW JOHN LEGG

2 Okay.

3 MS. ZIMMERMAN: I think that is a fair
 4 summary.

5 THE EXAMINER: My decision is as follows,
 6 and then we will have to see where we go from that.

7 The words, "and cross-examine",
 8 in (d) of I of the order, I think, can effectively
 9 be ignored. Mr. Gordon accepts that they are in
 10 error and I think everyone accepts that in any order
 11 in any Court they would be wrong.

12 The difficulty comes with the words in
 13 (e), apparently restricting the Plaintiffs to
 14 conducting an examination-in-chief; and in (f) the
 15 words:

16 "...to ensure equality of arms each side
 17 shall be restricted to questions which could, in the
 18 opinion of the Examiner, properly be asked of a
 19 party's own witness at a trial".

20 So far as (f) is concerned, the
 21 words, "to ensure equality of arms", do not normally
 22 appear in that type of provision, and the words, "of
 23 a party's own witness", do not normally appear. The
 24 words are normally, "properly be asked of a witness
 25 at a trial in the High Court of Justice".

Page 16

Page 17

1 ANDREW JOHN LEGG

2 It seems me that the words that I
 3 have identified in (e) and (f) must have been
 4 included deliberately in this order. I cannot
 5 imagine that they can be accidental in anyway. Both
 6 Mr. Gordon and Mr. Holl-Allen have submitted to me
 7 that, indeed, they were there intentionally in order
 8 to restrict cross-examination of these witnesses who
 9 are, perhaps, in a peculiar position as third
 10 parties.

11 That, however, seems to me to be
 12 in direct conflict with (i), (h) and (j), which
 13 provide for evidence to be given in accordance with
 14 US Federal Rules of Evidence, which I have no doubt
 15 at a trial, provide for direct cross-examination and
 16 re-examination and the fact that the purpose of
 17 eliciting and recording the testimony is for the
 18 trial in the United States District Court.

19 However, I am not in a position
 20 as Examiner to resolve direct inconsistencies in an
 21 order. If there is an inconsistency which cannot be
 22 reconciled, which in my opinion there is, that would
 23 have to go back to be resolved by the Senior Master.

24 I consider myself to be bound to
 25 follow the words that I have concluded are there

1 ANDREW JOHN LEGG

2 intentionally in subparagraphs (e) and (f) and to
 3 rule that from my interpretation of the order the
 4 Plaintiffs our precluded from cross-examining either
 5 this witness or the doctors.

6 Now, that opens up a number of questions
 7 of where we go from here. If you are precluded from
 8 cross-examining the witness today, you have a number
 9 of options available to you. One is to withdraw
 10 now; another is to allow Mr. Gordon to proceed with
 11 his examination (his direct examination) and then to
 12 either make objections and proceed, or withdraw at
 13 that stage. That is in order to see whether we can
 14 have something meaningful achieved today or not.

15 The second question, of course, relates
 16 to subsequent examinations, which are,
 17 unfortunately, the first -- the next round is
 18 scheduled for Sunday this week, which does not give
 19 anyone a lot of time to go back before the Senior
 20 Master and say, "What does this order mean?"

21 Was it pointed out to the Senior Master
 22 that this restriction on cross-examination would
 23 conflict with the general procedure when evidence
 24 comes to be given at a trial?

25 MR. HOLL-ALLEN: I am confident that that

Page 18

1 ANDREW JOHN LEGG
 2 point was not specifically made because I am sure
 3 that --
 4 THE EXAMINER: Okay.
 5 MR. HOLL-ALLEN: -- I would recall if it
 6 had.
 7 THE EXAMINER: I think, therefore, that
 8 my -- it is not a "ruling" because I cannot rule on
 9 the order, that is not within my power -- that my
 10 interpretation of what the order means leaves it in
 11 your hands very much to decide how you want to
 12 proceed today, and whether we can proceed today with
 13 anything, and at least prevent the possibility that
 14 Mr. Legg has to come back, and/or any of us have to
 15 come back. Do you want to take a few moments to
 16 consider --
 17 MR. ASSAAD: I just want to understand
 18 your order. Are you saying --
 19 THE EXAMINER: I'm not making an "order"
 20 because I cannot make an order.
 21 MS. ZIMMERMAN: They are --
 22 MR. ASSAAD: It is interpretation. Are
 23 you saying we can't ask questions at all -- you said
 24 to direct questions, to direct examination.
 25 THE EXAMINER: That's my interpretation

Page 20

1 ANDREW JOHN LEGG
 2 judicial system, what is the process of getting a
 3 call with the special Master today, or tomorrow, to
 4 set something up to resolve this issue?
 5 THE EXAMINER: I don't doubt that the
 6 Senior Master's clerk could be approached,
 7 explaining the urgency of the matter, and there is
 8 no doubt that the Senior Master is thoroughly
 9 conversant with conducting telephone hearings -- for
 10 example, I know that in asbestos cases where
 11 evidence often has to be taken on commission, almost
 12 all the hearings are by way of telephone. The
 13 Senior Master will be perfectly used to that
 14 procedure, whether she has any time available
 15 between now and the close of business Friday I
 16 couldn't say, I don't know what her position is.
 17 But in theory, there ought to be no difficulty in
 18 arranging a hearing or something before Sunday.
 19 MR. GORDON: Could I suggest that we
 20 maybe, while they are taking a break to confer, that
 21 we contact the Senior Master's clerk and see if we
 22 can possibly get a telephone hearing on --
 23 THE EXAMINER: I think it will be very
 24 sensible, myself, because obviously on Sunday if
 25 everyone turns up at 8.30 we would want to get going

Page 19

1 ANDREW JOHN LEGG
 2 of the order.
 3 MR. ASSAAD: Since we're on the record I
 4 have a couple questions before we move on. Is
 5 Mr. Legg available at any time in the next two
 6 weeks?
 7 MR. HOLL-ALLEN: I have not asked him
 8 that question, and I prefer not to do it, if you
 9 like, on the record, but I am, of course, happy to
 10 ask him.
 11 MR. ASSAAD: Those are questions, I
 12 think, when we go off the record we can discuss off
 13 the record with our clients: Is Dr. Legg available
 14 at any time in the next two weeks while we're still
 15 here; we're still here until the 9th or
 16 10th December.
 17 MR. HOLL-ALLEN: Yes.
 18 MR. ASSAAD: The second question is:
 19 Going forward I assume that your interpretation is
 20 going to apply to all?
 21 THE EXAMINER: Well, I have not studied
 22 the other orders, but let's assume for these
 23 purposes they are in identical form; I don't think I
 24 am likely to change my interpretation.
 25 MR. ASSAAD: As a foreign to the UK

Page 21

1 ANDREW JOHN LEGG
 2 with something, as opposed to having a couple of
 3 hours of trying to work out what we're going to do.
 4 Probably it will be sensible for
 5 you to contact Stephen Llewellyn.
 6 MR. GORDON: I have been in contact with
 7 Mr. Llewellyn and the barristers --
 8 THE EXAMINER: He could presumably get
 9 the ball moving on that, or counsel's clerk could
 10 get the ball moving on that.
 11 MR. ASSAAD: The reason why this is
 12 important is because, depending on the special
 13 Master's ruling, this is -- his ruling is going to
 14 stand --
 15 THE EXAMINER: Hers.
 16 MR. HOLL-ALLEN: And she's the Senior
 17 Master.
 18 MR. ASSAAD: I apologize. Senior Master:
 19 MR. HOLL-ALLEN: That is alright.
 20 MR. ASSAAD: We may, before this, contact
 21 the US judge to see whether this will even be
 22 admissible instead of wasting your client's time
 23 going through with this process and costs.
 24 THE EXAMINER: I quite understand. I am
 25 bound not to tinker with this order, but subject to

Page 22

Page 23

1 ANDREW JOHN LEGG
 2 that, I am very keen to get the maximum,
 3 effectively, that can be done today and on Sunday
 4 and next week within the confines of everyone's
 5 legal positions, which I quite understand. Shall we
 6 go off the record for a bit and then see where we
 7 go. I am sorry.

8 THE VIDEOGRAPHER: Going off the record
 9 at 24-minutes past 11 -- sorry blocks all the sound
 10 out. We're off.

11 (Recess taken)

12 (Following a telephone conference
 13 with Senior Master Fontaine)

14 THE VIDEOGRAPHER: We're back on the
 15 record at five-minutes past three. Two adjustments,
 16 as I said at the beginning of the read-in, the video
 17 recording was showing the 1st November; it is, of
 18 course, 1st December, and I have adjusted the
 19 timing immediately on that before the witness is
 20 sworn. The claim number, I think I read it out
 21 incorrectly. In the High Court of Justice Queen's
 22 Bench Division, it is claim number CR2016-520.
 23 Six-minutes past.

24 THE EXAMINER: Do we have anyone on the
 25 line from Florida?

1 ANDREW JOHN LEGG
 2 THE VIDEOGRAPHER: Not yet.
 3 THE EXAMINER: Mr. Legg, could you repeat
 4 after me.

5 ANDREW JOHN LEGG, AFFIRMED
 6 THE EXAMINER: If we could have your full
 7 names and your professional address.

8 THE WITNESS: Andrew John Legg. My
 9 professional address is Rotherham Hospital, and that
 10 is in Rotherham.

11 THE EXAMINER: Thank you. Yes,
 12 Mr. Gordon.

13 ANDREW JOHN LEGG, HAVING BEEN DULY AFFIRMED,
 14 TESTIFIED AS FOLLOWS

15 EXAMINATION BY MR. GORDON:

16 Q. Thank you. Good afternoon. I understand
 17 that the proper way to refer to you is Mr. Legg, not
 18 Dr. Legg. Is that correct?

19 A. That is correct, but I don't mind either
 20 way.

21 Q. For the benefit of me and Americans, for
 22 whom referring to a doctor as "mister" would be a
 23 sign of disrespect, could you explain, as it was
 24 explained to me earlier, why it is actually in your
 25 case a sign of respect to refer to you as "mister"?

Page 24

Page 25

1 ANDREW JOHN LEGG
 2 A. It is an historical thing. When
 3 operations were performed not by doctors, but
 4 actually by butchers, I suppose, and, therefore,
 5 they were not qualified doctors and they were mister
 6 because they were not doctors. So, when we become
 7 surgeons we revert back to being mister rather than
 8 doctor.

9 Q. Yes.

10 THE EXAMINER: A sign of ascendancy
 11 rather than descendancy.

12 THE WITNESS: It depends who you're
 13 talking to, sir, but, yes, I see it that way.

14 BY MR. GORDON:

15 Q. I wanted to be clear that I am not being
 16 disrespectful in referring to you as Mr. Legg.

17 A. No.

18 Q. You are a physician, though. Correct?

19 A. Yes.

20 Q. What type of physician are you?

21 A. Orthopedic surgeon.

22 Q. How long have you been an orthopedic
 23 surgeon?

24 A. I have been qualified as a consultant
 25 orthopedic surgeon since July 2016.

1 ANDREW JOHN LEGG
 2 Q. Prior to being a consultant, what were
 3 you?

4 A. I was what's in the UK is a trainee, or a
 5 resident in the States.

6 THE VIDEOGRAPHER: Can I stop you for a
 7 second, sir. Can we get the person to introduce themselves?

8 THE EXAMINER: I understand that we have
 9 a US attorney in Florida who is on speakerphone and
 10 on the videophone. Can you just introduce yourself
 11 for the record? No-one there. Let's carry on.

12 BY MR. GORDON:

13 Q. What was your -- the period that you were
 14 a trainee or a resident?

15 A. For a trainee, I was for eight years, but
 16 doing orthopedics, and prior to that, two years.

17 Q. When did you graduate from medical
 18 school?

19 A. 2005.

20 Q. Where did you obtain your orthopedic
 21 training?

22 A. That was in Sheffield predominantly, but
 23 also some in Leeds, New Zealand, and Coventry.

24 Q. All right. Just in the interests of

Page 26

1 ANDREW JOHN LEGG
 2 moving things along, I am going to mark that large
 3 volume in front of you as Exhibit 1 (Legg Exhibit
 4 1). All of the pages in it are sequentially
 5 numbered at the bottom and I will refer to the
 6 individual page numbers in Legg Exhibit 1. Go ahead
 7 and mark that.
 8 MS. ZIMMERMAN: For the record --
 9 THE COURT REPORTER: Just a moment.
 10 MS. ZIMMERMAN: For the record, the
 11 Plaintiffs object to the exhibit for lack of
 12 foundation.
 13 BY MR. GORDON:
 14 Q. The first thing I want to direct you to
 15 starts at page 411 through 413.
 16 THE EXAMINER: He has the same problem I
 17 have.
 18 MR. GORDON: That is why I took these
 19 first couple of big ones out.
 20 THE WITNESS: Okay.
 21 BY MR. GORDON:
 22 Q. The pages numbered 411 through 413, could
 23 you tell us what that document is?
 24 A. This was a paper which was published in
 25 the Journal of Bone and Joint Surgery in 2012, I

Page 28

1 ANDREW JOHN LEGG
 2 Q. I was actually going to ask that, my
 3 question as well. Thank you for clarifying.
 4 Now I would like you to just flip to 406
 5 through 409?
 6 A. Okay.
 7 Q. In the same manner, could you tell us
 8 what this document is?
 9 A. This was the second paper, which was
 10 published in 2013 in the same journal.
 11 Q. Again, you were the primary author?
 12 A. I am.
 13 Q. And Dr. Hamer is the senior author?
 14 A. He was.
 15 Q. But Dr. Cannon was not involved in the
 16 second paper. Is that correct?
 17 A. No.
 18 Q. Now, in the 2011 paper, what I am trying
 19 to do is come up with a sort of a shorthand way to
 20 describe that. This was -- this paper was based on
 21 work you did involving a volunteer subject. Is that
 22 correct?
 23 A. Correct.
 24 Q. And in the 2013 paper it is based on some
 25 experimental work that you did involving -- instead

Page 27

1 ANDREW JOHN LEGG
 2 believe, which I was the primary author on. 2011, I
 3 do apologize.
 4 Q. And so, the "A J Legg" there refers to
 5 you as the primary author?
 6 A. Yes.
 7 Q. Who were the other authors?
 8 A. Tom Cannon, it was a junior doctor at the
 9 time; and Mr. Andrew Hamer was my consultant at the
 10 time.
 11 Q. Were you -- and so you were a trainee at
 12 the time you were the primary author of this?
 13 A. Correct.
 14 Q. Okay.
 15 THE EXAMINER: Let me understand because
 16 I thought I read something somewhere else. Is it
 17 correct that it is a primary author whose name is
 18 first, or is it correct that it is the junior of the
 19 authors who is named first?
 20 A. Primary author is named first, and not
 21 always, but the senior author is usually last but
 22 that is not always the case. But the primary author
 23 is first.
 24 THE EXAMINER: Thank you.
 25 BY MR. GORDON:

Page 29

1 ANDREW JOHN LEGG
 2 of a human subject it was a mannequin?
 3 A. Yes. Correct.
 4 Q. The only reason I am saying that is that
 5 if it is okay with you I would like to refer to the
 6 human experiment versus the mannequin experiment.
 7 The human will refer to the 2011 paper, and the
 8 mannequin will refer to the 2013 paper.
 9 Which experiments were conducted first?
 10 In other words, was it the human, the one involving
 11 the human, or the one involving the mannequin?
 12 A. Human.
 13 Q. And how long after the human one did you
 14 conduct the mannequin study?
 15 A. I don't recall exactly, but it was only
 16 months.
 17 Q. What was the general time frame in which
 18 you conducted the human study?
 19 A. The human study was done in two weekends.
 20 Q. How long was the period of time that you
 21 took to do the mannequin study?
 22 A. That was just one day.
 23 Q. How much time was there in between the
 24 two studies?
 25 A. Again, I think just a couple of months.

Page 30

1 ANDREW JOHN LEGG

2 Q. If I could flip your attention, or direct
 3 your attention, to page 392. First of all, have you
 4 seen this e-mail prior to today?

5 A. Yes.

6 Q. When did you first see it?

7 A. First time I saw it was when I got this
 8 bundle.

9 Q. Okay.

10 A. So, a few weeks ago.

11 Q. Okay. So, you had not seen it other than
 12 in connection with this process?

13 A. No.

14 Q. Okay. What I want to do is direct your
 15 attention to the very bottom of 392 where it says:

16 "Also, Dr Andrew Legg has invited you
 17 guys to Sheffield hospital the weekend of
 18 July 17th and 18th to help with the research
 19 effort there. If you are interested the company
 20 would be willing to cover your hotel and expenses.
 21 Let me know and I'll work to book arrangements".

22 MS. ZIMMERMAN: Counsel, we would like to
 23 renew our objection to lack of foundation.

24 BY MR. GORDON:

25 Q. My question to you, Dr. Legg, is whether

Page 31

1 ANDREW JOHN LEGG

2 you recall ever meeting an individual named Mark
 3 Albrecht?

4 A. Yes.

5 Q. Do you recall Mr. Albrecht coming to
 6 Sheffield Hospital and conducting any research
 7 activities with you there?

8 A. Yes.

9 Q. Does the time frame of July 2010 seem
 10 about right?

11 A. Yes.

12 Q. What I would like to do is see if we can
 13 put your human study and your mannequin study into a
 14 time frame in connection with that July 2010 time
 15 frame. Had you done either of the -- either the
 16 human or the mannequin study -- prior to July 2010?

17 A. Yes, we had done the human study.

18 Q. So, I take it then the mannequin study
 19 was something you did after 2000 -- after July 2010?

20 A. We did it in July 2010.

21 Q. The mannequin study was the one. So the
 22 study that you, was published in 2013, that was
 23 based on work you did in July 2010. Is that
 24 correct?

25 A. Correct.

Page 32

1 ANDREW JOHN LEGG

2 Q. Okay. Who was participating in
 3 conducting that experiment in July 2010?

4 A. The mannequin study?

5 Q. Yes.

6 A. On that day, myself and Mr. Albrecht.

7 Q. Was anyone else involved?

8 A. Mr. Hamer was supervising, but he wasn't
 9 present on the day.

10 Q. Okay. That was the one you did in one
 11 day. Is that right?

12 A. Correct.

13 Q. What role did you play and what role did
 14 Mr. Albrecht play in that experiment?

15 A. From the experiment point of view, it was
 16 a follow-on from my first paper and, therefore, the
 17 set-up I had already created, it was what exists in
 18 the hospital. His role was the equipment. The
 19 bubble machine, the smoke machine--
 20 (Reporter clarification)

21 The bubble machine, smoke machine, temperature
 22 probe, and the camera.

23 Q. What specifically did he do with that
 24 equipment?

25 A. He was able to -- obviously, it was his

Page 33

1 ANDREW JOHN LEGG

2 equipment, he used it to make the bubbles, and took
 3 the pictures of the bubbles using a light source.

4 Q. Did he have anything to do with the
 5 experimental design?

6 A. The experimental design, the set-up, was
 7 already created. We discussed alterations in terms
 8 of how we were going to perform it, but the actual
 9 theatre set-up was already there.

10 Q. Had you met Mr. Albrecht prior to
 11 July 2010?

12 A. No.

13 Q. How did you first come into contact with
 14 Mr. Albrecht?

15 A. It was from my first study. The first
 16 study, to be able to perform that, we needed bits of
 17 equipment, involving the temperature probe, and
 18 particle counter, and, as the HotDog machine company
 19 had highlighted a potential error -- potential
 20 problem, should I say -- that is who I contacted to
 21 see if we could use some equipment to perform an
 22 experiment. So, from that their representative gave
 23 my details to Mark Albrecht who contacted me.

24 Q. Do you recall the name of the
 25 representative?

Page 34

1 ANDREW JOHN LEGG
 2 A. I don't know.
 3 Q. Was it a UK person?
 4 A. Yes.
 5 Q. Okay. Was the person an employee of
 6 HotDog to your --
 7 A. To my understanding, yes.
 8 Q. You said that the HotDog Company had
 9 highlighted -- I don't want to put words in your
 10 mouth -- but what was it that the HotDog Company had
 11 highlighted that caused you to be interested in
 12 doing that initial experiment?
 13 A. So, their marketing was in the form of a
 14 flier which we had seen, I think it had been sent to
 15 Mr. Hamer, and on that flier that there was a
 16 picture of how a -- how forced-air warming can
 17 disrupt laminar or unidirectional airflow.
 18 Q. Was this a marketing brochure?
 19 A. Yes.
 20 Q. Okay. What -- was there any video that
 21 you saw?
 22 A. There was video on their website, which I
 23 looked at.
 24 Q. This was at the HotDog website?
 25 A. Correct.

Page 36

1 ANDREW JOHN LEGG
 2 at the hospital.
 3 Q. Was it just delivered by like a postal
 4 service?
 5 A. No, by the representative whose name I,
 6 unfortunately, cannot remember.
 7 Q. At that point had you had any contact
 8 with Mr. Albrecht?
 9 A. No.
 10 Q. At what point after the equipment was
 11 delivered did you have any contact with
 12 Mr. Albrecht?
 13 A. That was after concluding the first study
 14 (the human study) when we were looking, trying to
 15 explain our findings.
 16 Q. In the first study you --
 17 THE EXAMINER: Page?
 18 MR. GORDON: I am sorry.
 19 THE EXAMINER: Internal page.
 20 MR. GORDON: Page 412.
 21 THE EXAMINER: 412, yes.
 22 BY MR. GORDON:
 23 Q. You make reference to a HandiLaz Particle
 24 Counter?
 25 THE EXAMINER: Where is this?

Page 35

1 ANDREW JOHN LEGG
 2 Q. What was it that you asked of the HotDog
 3 representative that led to your contact with
 4 Mr. Albrecht?
 5 A. Well, I set up the first experiment and
 6 the question we couldn't answer with the equipment
 7 we had from the first experiment was: What happened
 8 to the airflow, how to visualise it. So, I looked
 9 into different methods of visualizing/visualization
 10 of airflow and, at that point, they said that a good
 11 way of visualizing airflow is with bubbles and that
 12 is where Mr. Albrecht came in.
 13 Q. In the first study (the human volunteer
 14 study) did you use any equipment that was loaned to
 15 you by the HotDog Company?
 16 A. Yes. They loaned us a smoke machine,
 17 temperature probe, and a HotDog warming conductive
 18 warming blanket and also a particle counter.
 19 Q. Were these -- strike that.
 20 How were these pieces of equipment
 21 provided to you?
 22 A. I contacted the representative. I don't
 23 know whether -- I don't recall whether I did that by
 24 phone or by e-mail, and they were more than happy to
 25 provide me with the equipment and delivered it to me

Page 37

1 ANDREW JOHN LEGG
 2 MR. GORDON: On the right column up,
 3 three quarters of the way down the page.
 4 THE EXAMINER: Yes. Thank you. Do you
 5 have that?
 6 A. Yes.
 7 BY MR. GORDON:
 8 Q. Is the HandiLaz hand-held counter
 9 referred to there, is that one of the pieces of
 10 equipment that was provided by HotDog?
 11 A. Correct.
 12 Q. Had you ever used one prior to that?
 13 A. No.
 14 Q. Did anyone from HotDog assist you in
 15 configuring it or figuring out how to use it?
 16 MS. ZIMMERMAN: Object to form.
 17 (Reporter clarification)
 18 THE EXAMINER: Object to form. You may
 19 answer.
 20 A. No.
 21 BY MR. GORDON:
 22 Q. Were you provided with any kind of manual
 23 or instructions?
 24 A. Not that I can recall, but it is simple
 25 to use.

Page 38

1 ANDREW JOHN LEGG
 2 THE EXAMINER: The paper says the number
 3 of particles was measured. Was that you who was
 4 able to carry out that measurement?
 5 A. Correct.
 6 BY MR. GORDON:
 7 Q. I am going to have you take a look at
 8 page 149. It is actually a fairly large document
 9 all the way to 221?
 10 THE EXAMINER: This is one I removed in
 11 the interests of portability.
 12 MS. GARCIA: I don't think we're going to
 13 dwell on it.
 14 Have you seen this before?
 15 A. Not until I was given this bundle.
 16 Q. Okay. And --
 17 MS. ZIMMERMAN: Can I ask a point of
 18 clarification? As we make objections to foundation,
 19 for example, should we be looking to you?
 20 THE EXAMINER: You're putting them on the
 21 record for the US judge.
 22 MS. ZIMMERMAN: That is what I would
 23 assume. Well, we renew our objection for lack of
 24 foundation given the witness's testimony.
 25 BY MR. GORDON:

Page 40

1 ANDREW JOHN LEGG
 2 surgeon standing there, and also holding the
 3 particle counter?
 4 A. Sure.
 5 Q. Okay. You also on the -- on page 411,
 6 the first page of the 2011 study?
 7 MR. ASSAAD: 2012.
 8 MR. GORDON: No. 2011.
 9 Q. Do you have that page 411?
 10 A. Yes.
 11 Q. On the right-hand side, the second
 12 paragraph down of text describing the vertical
 13 unidirectional ventilation, there is a reference to
 14 the walls around the operating area reaching down to
 15 30 centimetres from the floor and then a discussion
 16 of body exhaust suits. Then it states:
 17 "Both of these systems are employed in
 18 our theatre set-up".
 19 Then on the next page, on the right-hand
 20 side, you refer to an:
 21 "ExFlow 90 Howorth enclosure with
 22 vertical wall extensions to 1 metre from the floor".
 23 A. Correct.
 24 THE EXAMINER: Where is the second one?
 25 MR. GORDON: In the middle on the

Page 39

1 ANDREW JOHN LEGG
 2 Q. Do you recall how you set the
 3 particle-size channels on the HandiLaz?
 4 A. No, is the answer to that.
 5 Q. When you actually used it for the first
 6 study, how did you -- how did you employ it? In
 7 other words, was it something that you held in your
 8 hand; did somebody else hold it; was it mounted on
 9 something?
 10 A. It was mounted above -- we held it above
 11 the surgical site, ie the knee, which was the focus
 12 of the operation.
 13 THE EXAMINER: Were you the surgeon in
 14 the operating room for the purposes of these
 15 experiments?
 16 A. Correct. And Mr. Cannon, who is the
 17 other member on the -- was the patient.
 18 THE EXAMINER: Right.
 19 MR. HOLL-ALLEN: He was the human.
 20 THE EXAMINER: Not the mannequin.
 21 BY MR. GORDON:
 22 Q. Was there anyone else present, besides
 23 you and Dr. Cannon, for that first experiment?
 24 A. No.
 25 Q. So, you were playing both the role of the

Page 41

1 ANDREW JOHN LEGG
 2 right-hand side.
 3 Q. If you can just help me understand. How
 4 far did the wall extensions extend? Was it 30
 5 centimetres or --
 6 A. One meter off the ground. I was implying
 7 that we used wall extensions on the first page.
 8 Q. Was there ever time when you used wall
 9 extensions that went all the way to 30 centimetres
 10 on to the floor?
 11 A. No.
 12 Q. Okay.
 13 On the first page of the 2011 study, it
 14 is page 411 in exhibit 1, in the second line of the
 15 introduction you say:
 16 "Recently there have been concerns that
 17 forced air warming may interfere with unidirectional
 18 airflow, potentially posing an increased risk of
 19 infection".
 20 To what was that referring? To what
 21 concerns?
 22 A. Well, the concerns that had been raised
 23 by the HotDog company.
 24 Q. Okay. At that point were you aware of
 25 concerns raised by anyone else?

Page 42

1 ANDREW JOHN LEGG
 2 A. No.
 3 Q. Okay. Prior to conducting this study,
 4 had you had discussions with Mr. Albrecht?
 5 A. No.
 6 Q. Had you had discussions with anyone
 7 connected with HotDog (the HotDog Company) other
 8 than the representative who facilitated you getting
 9 use of the equipment?
 10 A. No.
 11 Q. Who designed the study?
 12 A. I designing the study, along with the
 13 supervision of Mr. Hamer.
 14 Q. There are, looks like, 18 references in
 15 the published version of the 2011 study. Who did
 16 the research to collect those references?
 17 A. I did.
 18 Q. How did you go about doing that? Was
 19 that a computer research? Was there a library --
 20 A. It's a combination of library and also
 21 doing the big medical journal reference libraries,
 22 which you can do searches through, which is what I
 23 did for this.
 24 Q. Do you remember what the search terms
 25 were, the search parameters that led you to these

Page 44

1 ANDREW JOHN LEGG
 2 that paper.
 3 THE EXAMINER: I understand that, but the
 4 name of the paper is as set out at note six.
 5 THE WITNESS: Absolutely, yes.
 6 BY MR. GORDON:
 7 Q. For the set-up, for the first experiment,
 8 was there any drape suspended from the ceiling?
 9 A. Define "ceiling".
 10 Q. Maybe that is too broad -- too narrow a
 11 question.
 12 Was there any drape that was used within
 13 the enclosure?
 14 A. Yes.
 15 MR. GORDON: Where --
 16 THE EXAMINER: Do you want to explore,
 17 for the purpose of a US jury, what "drape" in these
 18 circumstances precisely means?
 19 BY MR. GORDON:
 20 Q. Yes, thank you.
 21 Maybe it is easier if we look at
 22 the drawing in your second study. If you turn to --
 23 MS. ZIMMERMAN: 407.
 24 BY MR. GORDON:
 25 Q. 407. Does that depiction on the top of

Page 43

1 ANDREW JOHN LEGG
 2 references?
 3 A. No, I don't.
 4 Q. Again, going back to the front page of
 5 the 2011 article, you say at the beginning of the
 6 text paragraph, at the bottom at the last line of
 7 that:
 8 "There are also concerns that forced air
 9 warming devices disrupt unidirectional airflow, thus
 10 potentially causing risk of infection".
 11 For that it looks like you cite a 2002
 12 paper by Tumia and Ashcroft. Is that correct?
 13 A. That is correct.
 14 Q. Do you recall whether that paper
 15 concluded that there was any reason to be concerned
 16 about forced-air warming devices disrupting
 17 unidirectional airflow?
 18 A. I don't specifically know, recall the
 19 exact paper, I am afraid.
 20 THE EXAMINER: Was that not the paper
 21 name set out at note six?
 22 THE WITNESS: Correct, yes.
 23 BY MR. GORDON:
 24 Q. That is what you cited --
 25 A. I can't recall the exact conclusion from

Page 45

1 ANDREW JOHN LEGG
 2 the page, does that show generally where the drape
 3 was?
 4 A. Yes.
 5 Q. Is the drape the vertical black line that
 6 goes down to about the surgeon's elbows?
 7 A. No. That is part of the wall extensions,
 8 which come out from the Howorth enclosure. The
 9 blue, which is blue on mine, is the drape.
 10 MR. GORDON: Okay.
 11 THE EXAMINER: It comes right down to the
 12 patient's chest.
 13 THE WITNESS: Yes, and covers the rest of
 14 the patient apart from the limb being operated on.
 15 BY MR. GORDON:
 16 Q. How, so that the -- part of the drape
 17 that goes from the patient up, how is that held
 18 there? Is it suspended from the ceiling? Suspended
 19 from stanchions of some sort?
 20 A. Yes. It is suspended. Across the
 21 enclosure there is metal railing, which it is
 22 clipped to.
 23 THE EXAMINER: That is the enclosure of
 24 the operating section of the theatre?
 25 THE WITNESS: Correct.

Page 46

1 ANDREW JOHN LEGG
 2 BY MR. GORDON:

3 Q. And is that the standard set-up that was
 4 employed at the hospital at that time frame for knee
 5 arthroplasties?

6 A. Yes. That is correct.

7 Q. Did you ever have any discussions with
 8 anyone connected with the Howorth, the makers of the
 9 unidirectional airflow enclosure, about that set-up,
 10 hanging a drape from inside it?

11 A. No.

12 THE EXAMINER: Just before we move away
 13 from that diagram, could you explain to me, to
 14 clarify, where the forced-air warmer (of whatever
 15 type it is) would be in relation to this?

16 THE WITNESS: It's not -- it doesn't
 17 photocopy very well, but if you look on the body of
 18 the mannequin there is depicted a device, but
 19 essentially it is a torso-warming device.

20 THE EXAMINER: So it is from neck to
 21 waist?

22 THE WITNESS: Correct.

23 THE EXAMINER: Thank you.

24 BY MR. GORDON:

25 Q. In your first study, I believe you do it

Page 47

1 ANDREW JOHN LEGG
 2

3 on the second one as well but let's start with the
 4 first study, you make reference on page, on the
 5 second page, page 4 of 12, in the middle of the
 6 second, of the second line, to a validation report
 7 on the ventilation system conforming to the
 requirements of Health Technical Memorandum HTM2025.

8 A. That is correct.

9 Q. If I could direct your attention now to
 10 exhibit -- pages 1 through 121.

11 THE EXAMINER: Right back at the
 beginning.

12 BY MR. GORDON:

13 A. Remind me of the numbers again.

14 Q. 1 through 121. That document on pages 1
 15 through 121 is that the Health Technical Memorandum
 16 HTM2025 to which you refer in your 2011 study?

17 A. Yes.

18 Q. Have you consulted this document (the
 19 HTM2025) in connection with this 2011 study?

20 A. I know of its existence and what it tries
 21 to achieve and I know that as part of the hospital
 22 it has to meet certain levels, which this sets out,
 23 and the hospital had met that. So, I know that the
 24 hospital conditions had met this criteria.

Page 48

1 ANDREW JOHN LEGG
 2

3 Q. And what did you do to satisfy yourself
 that that was the case?

4 A. I contacted theatre staff who had
 5 evidence that it had past the required tests?

6 THE EXAMINER: There are specific tests
 7 set out in this that hospitals have to meet?

8 THE WITNESS: Correct.

9 BY MR. GORDON:

10 Q. And if I could now direct your attention
 to pages 222 through 391.

11 THE EXAMINER: Another one I thought you
 12 were not going to deal with.

13 MR. ASSAAD: What was it?

14 MS. COSTELLO: 222.

15 BY MR. GORDON:

16 Q. It's a lengthy document, obviously. It's
 17 entitled "Heating and ventilation systems Health
 18 Technical Memorandum 03-01: Specialised ventilation
 19 for healthcare premises". Have you seen this
 20 document prior to getting this volume of material
 21 for this deposition?

22 A. No.

23 Q. Direct your attention to page 223 and the
 24 line where about two-thirds of the way down it says

Page 49

1 ANDREW JOHN LEGG
 2

3 "Superseded docs", and it says, "Health Technical
 4 Memorandum 2025". I will direct your attention to
 5 page 225 where the copyright on is indicated as
 6 2007.

7 Were you aware, when you did your 2011
 8 study, that the HTM2025 had been superseded?

9 A. No.

10 Q. I am guessing today is the first you
 became aware of that?

11 MS. ZIMMERMAN: Object to form.

12 THE EXAMINER: You may answer.

13 THE WITNESS: Yes.

14 BY MR. GORDON:

15 Q. Going back to the paper, right after you
 talk about the HTM2025, you say:

16 "Temperature measurements taken before
 17 and 30 minutes after warming".

18 Do you see that?

19 A. Yes.

20 Q. I am not sure that I understand and I
 want to clarify. The "before" I understand, it was
 21 before anything had happened. Right?

22 A. Yes.

23 Q. Was the "after warming" after the warming

Page 50

1 ANDREW JOHN LEGG
 2 had been turned on or after the warming had been
 3 turned off -- turned on and then turned off?
 4 A. No. After the warming had been turned
 5 off, left it for 30 minutes. At that point we
 6 assumed that it had reached a stabilization point,
 7 therefore that's what we called the temperature
 8 after 30 minutes of warming. The heating device was
 9 on at that point.
 10 Q. And had been on for 30 minutes?
 11 A. Correct.
 12 Q. Okay. And that was true of both the
 13 HotDog and the Bair Hugger?
 14 A. Correct?
 15 Q. Okay. In the discussion of your 2011
 16 paper on the --
 17 A. Remind me what page we were.
 18 Q. Page 413. You state:
 19 "Because of the nature of our experiment
 20 we are unable to conclude that the use of a forced
 21 air warming device, which produced a change in
 22 temperature and an increase in the number of
 23 particles, would actually lead to an increased risk
 24 of surgical site infection. The results do suggest
 25 that the downward flow of air is disrupted, as the

Page 52

1 ANDREW JOHN LEGG
 2 blanket or the fan unit?
 3 A. The warming device is the blanket, that
 4 is what gets warm in terms of the Bair Hugger or the
 5 HotDog conductive fabric.
 6 MR. GORDON: Okay.
 7 THE EXAMINER: The measuring device is at
 8 the surgical site.
 9 THE WITNESS: Yes --
 10 THE EXAMINER: Or as close to it as you
 11 can get?
 12 THE WITNESS: Yes. That's what I was
 13 concerned about at that point.
 14 BY MR. GORDON:
 15 Q. Going back to page 413, your 2011 study,
 16 again in the discussion, the next paragraph, you
 17 say:
 18 "bacteria require particles to transport
 19 them, and although we are unable to confirm if any
 20 of the particles were transporting bacteria, the
 21 significant increase in the number of particles that
 22 we found in this study at the surgical site is a
 23 concern".
 24 Did I read that correctly?
 25 A. Correct.

Page 51

1 ANDREW JOHN LEGG
 2 warming device was lower than at the surgical site".
 3 Did I read that correctly?
 4 A. Yes.
 5 Q. Can you help me. I'm not sure that I
 6 understand the last sentence of:
 7 "The results do suggest the downward flow
 8 of air is disrupted, as the warming device was lower
 9 than at the surgical site".
 10 A. So, probably the easiest way is to look
 11 at the picture.
 12 Q. On the other side?
 13 A. Yes.
 14 THE EXAMINER: Shall we go back for it?
 15 MR. HOLL-ALLEN: 407.
 16 THE EXAMINER: Yes.
 17 THE WITNESS: The warming device is on
 18 a -- it was on a human at that point, but this is on
 19 a mannequin with them laid on their back and with
 20 their knee bent and, therefore, the knee is higher,
 21 the top of the knee is higher than the chest.
 22 Therefore, the warming device is lower than where we
 23 were measuring the temperature.
 24 BY MR. GORDON:
 25 Q. By "device" you are talking about the

Page 53

1 ANDREW JOHN LEGG
 2 Q. Did you do anything to try to assess
 3 whether there was any transportation of bacteria?
 4 A. It wasn't published here, but I spoke to
 5 a microbiologist about trying to measure bacteria,
 6 with, I believe it is called a slit sampler. Their
 7 advice was you won't be able to measure it because
 8 bacterial load is so low. We tried and we didn't,
 9 actually, to identify if there was any increased
 10 bacterial level, but the microbiologists weren't
 11 surprised at that.
 12 Q. Tell me how you attempted to measure
 13 bacteria?
 14 A. It was using these agar plates, which is
 15 a gel which grows the bacteria once it lands on it
 16 and, if I recall rightly, air's sucked into this
 17 device onto these plates which are then sent to the
 18 lab.
 19 Q. So, that is something you did in the
 20 first experiment?
 21 A. Yes.
 22 Q. How many of the agar plate devices did
 23 you use?
 24 A. I don't recall.
 25 Q. Where were they placed?

Page 54

1 ANDREW JOHN LEGG

2 A. They were placed where we were concerned,
 3 which was on the surgical site, which is at the
 4 level of the knee.

5 Q. So, you collected the samples on the agar
 6 plates over what period of time?

7 A. Again, I don't really, really recall.
 8 That was on the advice of the microbiologist, but I
 9 don't recall how long.

10 Q. So, before the operation you -- the
 11 microbiologist advised you to, how to go about using
 12 these agar plate colonies?

13 A. Yes.

14 Q. That -- was equipment that the hospital
 15 has?

16 A. Yes, because they do check the level, I
 17 don't know how often, but to make sure that the
 18 theatre environment is safe.

19 Q. So, you sent these agar plates to the
 20 microbiology lab. Is that correct?

21 A. Correct.

22 Q. And what kind of a report did you get
 23 back -- something written, something verbal?

24 A. Again, I don't recall it. I'm sure I
 25 would have got something written, but I don't recall

Page 56

1 ANDREW JOHN LEGG

2 microbiologist, they said that you won't find
 3 anything out, which they were correct.

4 Q. How was it the hospital used these
 5 devices?

6 A. How?

7 Q. What -- for what purpose did the
 8 microbiologist use them?

9 A. So, I don't know --

10 MS. ZIMMERMAN: Object to form.

11 THE WITNESS: -- for other things, but in
 12 the operate -- in the orthopedic theatre they use
 13 them to test for the level of bacterial level, which
 14 has to be, by the standard, less than one
 15 colony-forming unit.

16 BY MR. GORDON:

17 Q. Is this -- under what circumstances would
 18 the microbiologist use those to test in the
 19 orthopedic operating room?

20 A. To my knowledge, it happens as a standard
 21 of -- a level standard, so I don't know whether they
 22 do it every year, but it's periodically they check.

23 Q. So, on a routine basis?

24 A. Correct, yes.

25 Q. So, I just want to make sure that the

Page 55

1 ANDREW JOHN LEGG

2 it or have it.

3 Q. Okay. Do you recall were any bacteria or
 4 colony-forming units cultured out on the agar
 5 plates?

6 A. Just came back, which is the recommended
 7 level, which is less than one.

8 Q. Less than one colony-forming unit?

9 A. Yes. One ordinary, yes.

10 Q. And I want to make sure that we're clear.
 11 That was a sample you collected during the time that
 12 the Bair Hugger warming device was used and the
 13 particles that you were counting were moving over to
 14 the surgical site?

15 A. Correct.

16 MS. ZIMMERMAN: Object to form.

17 BY MR. GORDON:

18 Q. Why did you decide not to include that
 19 information in the publication?

20 A. Because it didn't really add anything.

21 It's such a poor identification of how much bacteria
 22 is present that I don't think it really gives us --
 23 it's not very specific or sensitive; you have to
 24 have a huge number present to give you a positive
 25 value and, therefore, on the advice of the

Page 56

1 ANDREW JOHN LEGG

2 jury understands. The hospital routinely was
 3 checking the orthopedic surgical suites using the
 4 same agar plate device that you used in essentially
 5 the same manner?

6 MS. ZIMMERMAN: Object to form:
 7 Misstates the testimony.

8 THE EXAMINER: You may answer.

9 THE WITNESS: I don't know specifically
 10 how they do it, but how they advised me to do it as
 11 part of this experiment is what I did.

12 BY MR. GORDON:

13 Q. And your understanding was that the
 14 standard that they (that the OR) had to meet was
 15 less than one colony-forming unit when the
 16 microbiologist did the routine testing. Is that
 17 right?

18 A. Yes.

19 Q. When you did that testing, that was
 20 during the period of time when all the particles
 21 that you discussed in the 2011 paper were being
 22 mobilized over the surgical site, your paper
 23 indicates, because of the convection currents. Is
 24 that right?

25 A. Yes.

1 ANDREW JOHN LEGG

2 Q. What -- did you consider the -- strike
3 that.

4 Did you have a hypothesis that the
5 particle, the increased particles, would potentially
6 be capable of transporting bacteria?

7 A. We know that bacteria are carried on
8 particles and, therefore, it's a possibility.

9 Q. By using the agar plate method that was
10 the routine method of surveillance for the operating
11 room, and finding/getting results that complied with
12 the operating room standards, did that appear to
13 indicate that whatever additional particles were
14 being mobilized over the site by use of the Bair
15 Hugger were not, in fact, adding to the bacterial
16 load?

17 A. No.

18 MS. ZIMMERMAN: Object to form.

19 BY MR. GORDON:

20 Q. Did you have a hypothesis as to how there
21 might be increased bacteria, but this method,
22 standard surveillance method that the hospital uses,
23 wasn't picking it up?

24 A. Because you have to have a large number
25 of bacteria present on these plates for it to pick

1 ANDREW JOHN LEGG

2 up a result.

3 Q. So --

4 A. So, we weren't looking to see whether
5 there was one bacteria and that doubled to two. You
6 would have to see a huge volume of bacteria to give
7 you a positive result and that's what the
8 microbiologist advised us why we wouldn't find
9 anything.

10 Q. When you -- what do you mean by "huge"?
11 You said that going from one to two, it might not
12 pick it up, but what -- at what level would, was
13 your understanding it might have picked it up?

14 A. I don't know, is the answer to that.

15 Q. Whatever the "huge" level is, though,
16 were you satisfied that the agar plate testing that
17 you did indicated that there wasn't a huge increase
18 in bacteria?

19 MS. ZIMMERMAN: Object to form.

20 THE WITNESS: I was satisfied that it was
21 less than one colony-forming unit per cubic meter.

22 BY MR. GORDON:

23 Q. During the mannequin study -- strike
24 it.

25 During the human study with the Bair

1 ANDREW JOHN LEGG

2 Hugger blanket on top of the, I guess it was Dr.
3 Cannon --

4 A. Yes.

5 Q. -- was that then covered at all with any
6 kind of cotton blankets or surgical draping or
7 anything else or --

8 A. Just referring back to the picture
9 probably gives it, shows it best. There was no
10 further blanket on top, but the drape does come into
11 contact with both warming devices.

12 THE EXAMINER: But the drape is above the
13 warming device.

14 THE WITNESS: Correct.

15 BY MR. GORDON:

16 Q. At that time, when you were -- when the
17 hospital was performing actual knee procedures, was
18 that the standard way of draping just the single
19 drape over the blanket?

20 A. Correct.

21 Q. Was the Bair Hugger blanket adhesive
22 strip applied to Dr. Cannon?

23 A. Yes.

24 Q. How far away, if you recall, was the edge
25 of the Bair Hugger blanket from the opening in the

1 ANDREW JOHN LEGG

2 drape for the surgical access?

3 A. Just clarify what you mean by that.

4 Q. Well, I recognise that the picture is
5 kind of difficult to see, but if I am understanding
6 it the drape hung down, went -- made essentially a
7 90-degree angle?

8 A. Correct.

9 Q. Then at some point there had to be an
10 opening in it --

11 A. Yes.

12 Q. -- to get access to the part of the
13 body --

14 A. Yes.

15 Q. -- to work on. Right?

16 A. So, where the knee is exposed there is a
17 hole in the drape where the leg comes through and it
18 is depicted kind of where it is. The blanket comes
19 down the torso and the hole in the drape, so the
20 limb that is exposed, is mid-to upper thigh.

21 Q. And how far from the edge of the Bair
22 Hugger blanket where the adhesive tape was taped off
23 to Dr. Cannon to the opening --

24 THE EXAMINER: That is from the waist to
25 upper thigh.

Page 62

1 ANDREW JOHN LEGG
 2 THE WITNESS: Upper thigh, yes.
 3 THE EXAMINER: Depending on how tall Dr.
 4 Cannon was?
 5 THE WITNESS: I can't tell you exactly
 6 how -- we didn't measure that.
 7 BY MR. GORDON:
 8 Q. Okay. There were no other -- there was
 9 just the single drape on top of the Bair Hugger?
 10 A. Yes.
 11 Q. Do you use any kind of warming device in
 12 your current practice?
 13 A. Yes.
 14 Q. What do you use?
 15 A. We use a Bair Hugger.
 16 Q. Is the draping method that you use now
 17 essentially the same?
 18 A. No.
 19 Q. How does it differ?
 20 A. So, we don't have -- I don't use wall
 21 extensions, so you just have that Howorth enclosure
 22 and no wall extensions. I cover the warming blanket
 23 with additional insulation and drapes similar at the
 24 top end to how it is, but there are significant
 25 changes which I have made.

Page 64

1 ANDREW JOHN LEGG
 2 essentially that had been written by himself, or one
 3 of his colleagues, and was given to us for review.
 4 Q. And I apologize, things got a little
 5 jumbled. Well, no, I guess not. It is a divider.
 6 If you look at pages 432 through 450, is
 7 that the manuscript that would have been attached to
 8 the e-mail?
 9 A. Yes.
 10 Q. Who drafted the manuscript pages 432
 11 through 450?
 12 A. Either Mark Albrecht or Christopher
 13 Nachtsheim.
 14 Q. Had you -- did you ever meet Christopher
 15 Nachtsheim?
 16 A. I never met him or had any contact with
 17 him.
 18 Q. What was your understanding of his role
 19 in the preparation of this?
 20 A. I didn't really -- didn't really know.
 21 Q. Were you -- strike that.
 22 The manuscript pages 432 through 450,
 23 what relation, if any did, that have to the
 24 experiments that you and Mr. Albrecht carried out in
 25 July 2010 at the hospital in Sheffield?

Page 63

1 ANDREW JOHN LEGG
 2 Q. And are those --
 3 A. That is in my current place.
 4 Q. Are these changes that you implemented
 5 yourself?
 6 A. Nobody in my current institute uses the
 7 wall extensions. I don't think we even have them in
 8 the hospital. I can't comment on how other people,
 9 whether they insulate the Bair Hugger, but I do
 10 that.
 11 Q. And do you do that as a result of your
 12 studies?
 13 A. Yes.
 14 Q. If we could turn now to page 430. Have
 15 you seen this document before, this e-mail?
 16 A. Yes.
 17 Q. Prior to when you got this pack of
 18 material?
 19 A. Correct, yes.
 20 Q. It is dated September 10th, 2010. Is
 21 that about the time that you would have seen it?
 22 A. Yes.
 23 Q. Could you tell me what the e-mail is?
 24 A. So, the e-mail is -- was attached to
 25 that. There was a manuscript from Mark Albrecht,

Page 65

1 ANDREW JOHN LEGG
 2 A. It was -- that is what, he wrote it.
 3 That was what was written up on the basis of what
 4 happened that day.
 5 Q. Okay. And if we turn to the 2013 study,
 6 pages 406 to 409, is this paper the 2013 paper, that
 7 you and Dr. Hamer published, is that based on the
 8 same experiments that are discussed in the draft
 9 article pages 432 through 450?
 10 A. Correct.
 11 Q. In the published paper, four pages,
 12 406-409, is there any reference to participation by
 13 Mr. Albrecht or Dr. Christopher Nachtsheim?
 14 A. No.
 15 Q. Why was that?
 16 A. Based on the manuscript, which we
 17 received to this draft manuscript, after discussing
 18 with Mr. Hamer it felt that it was more appropriate
 19 for us to write up the manuscript. We never had any
 20 deal that they were going to write the manuscript,
 21 so we were very surprised when that happened and
 22 felt very uncomfortable for them to be writing that
 23 manuscript. After a number of e-mails, mainly by
 24 Mr. Hamer, it was decided that we would write up the
 25 manuscript independently.

Page 66

ANDREW JOHN LEGG

Q. E-mails by Mr. Hamer and you, or someone else?

A. I was copied into them. Mr. Hamer initially replied to Mr. Albrecht, who then deferred it to Mr. Augustine -- Scott Augustine.

Q. Did you have any contact with Dr. Scott Augustine?

A. No, not directly, only by being copied in the e-mails.

Q. And some of the e-mails were between Dr. Hamer and Dr Scott Augustine?

A. Yes.

Q. Do you recall what the nature of that exchange or those exchanges were?

A. Essentially, we were very -- we were unhappy with how we had been managed, in terms of this paper had been pushed onto us, we had never had agreed that would be the case, and when we explained and expressed our, how unhappy we were about this, they were fairly abrupt and aggressive in their response and suggested that this was normal practice. But we didn't feel it was and, therefore, initially I think -- well, I do recall Mr. Hamer suggesting that they just took the paper on and

Page 67

ANDREW JOHN LEGG

wrote it themselves, but instead the decision made was that we were going to part company and we were going to write it up.

MS. ZIMMERMAN: Move to strike the response as hearsay.

THE EXAMINER: Hearsay.

BY MR. GORDON:

Q. In the interests of time I don't want, I'm not going to go through and do a side-by-side comparison, but I would like to ask you whether the draft that was sent to you by Mr. Albrecht was in any measure used by you in writing the paper that was ultimately published in 2013?

A. No.

THE EXAMINER: Did the draft itself ever proceed down the route towards publication?

THE WITNESS: Not that I'm aware of.

BY MR. GORDON:

Q. In the, I'll call it the "Albrecht draft" -- I misspoke.

If I could direct your attention onto page 394. It is an e-mail dated October 4th 2010.

A. Yes.

Q. Do you recall receiving this e-mail?

Page 68

ANDREW JOHN LEGG

A. Yes.

Q. There are a number of other names on here. Prior to receiving this e-mail had you ever, ever had any contact with Mike Reed?

A. No, I don't think so. I had contact with Mike Reed at some point, but I don't think prior to this, to my knowledge.

Q. Have you ever met Dr. Reed -- or Mr. Reed?

A. After this I had, yes. Not prior to.

Q. And was that in connection with anything to do with studies of Bair Hugger or HotDog, as opposed to, you know, medical society meetings --

A. No, no. It was coincidentally just at a Medical Society meeting.

Q. Right. Same question with respect to Dr. McGovern. Had you met him prior to October 4th, 2010?

A. No.

Q. Have you met him subsequently?

A. No.

Q. How about Robert -- Dr. Robert Gauthier?

A. No.

Q. And we have already talked about

Page 69

ANDREW JOHN LEGG

Nachtsheim. Have you ever met Scott Augustine?

A. No.

Q. Maybe I have asked you that already, sorry if I did.

I want to direct your attention to the bottom of this e-mail, where it says:

"I'll also be sending out a revised manuscript that includes Andrew Legg's comments/suggestions in the next week or two. I look forward to working with you all and wrapping up this research".

Do you know what "comments/suggestions" this refers to?

A. I did make comments to that manuscript. I don't have them, I don't know who -- I presume that they were on my hospital e-mail account, which I no longer have access to. But it was about this time where the comments were made and we were having discussions with Mr. Hamer about what was happening.

Q. At the point where you made the comments and suggestions that Mr. Albrecht refers to here, at that point were you of the view that you were going to work with Mr. Albrecht and --

A. No. I had my concerns. I was very

Page 70

1 ANDREW JOHN LEGG
 2 junior at the time, which is why I sought advice
 3 from Mr. Hamer.
 4 THE EXAMINER: I am a bit confused by
 5 this, Mr. Legg. Perhaps you can help me. On page
 6 430 the attachment is a document called
 7 "Manuscript_Legg_9.7.docx" and 600 [kilobytes]I
 8 suppose it is. Do you see that?
 9 A. Yes.
 10 Q. Then if you go back to page 395, we have
 11 an Abstract_Waste_Heat_Only document, which is only
 12 253 kilobytes and Laminar_research_low_res, that is
 13 not a Word document, it is some other type,
 14 PowerPoint that is -- of 1105. So, when he says, "I
 15 will also", I'm sorry, "I will also be sending out
 16 in the next week or two"..." I'm sorry. A false
 17 point. Maybe you're coming to it.
 18 BY MR. GORDON:
 19 Q. That is precisely where I am going.
 20 Thank you.
 21 (To the witness) On this e-mail, on page
 22 394, the second paragraph at the bottom, it says:
 23 "Also, I've attached an abstract draft to
 24 be submitted to the British Association for Surgery
 25 of the Knee 2011 Annual Meeting in Cardiff".

Page 72

1 ANDREW JOHN LEGG
 2 independent, after the discussions had been made at
 3 the Knee Society meeting.
 4 Q. I am sorry. So, are we talking about the
 5 same -- the British Association -- BASK?
 6 A. Yes.
 7 Q. That 2011 meeting?
 8 A. I don't think it was that meeting. I
 9 can't recall it. It would be in my CV. I can't
 10 remember exactly when the meeting was but it was
 11 presented --
 12 Q. Who was it --
 13 A. -- at the meeting.
 14 Q. Who were identified as the authors?
 15 A. Again, it was myself, Mr. Hamer and
 16 Mr. Cannon.
 17 Q. Was there any indication that
 18 Mr. Albrecht had participated in the experiments?
 19 A. No.
 20 Q. At that -- in that poster for that
 21 presentation was there any indication that the
 22 makers of HotDog had supplied you with the use of
 23 equipment in doing these experiments?
 24 A. No.
 25 Q. Turn to page 428 --

Page 71

1 ANDREW JOHN LEGG
 2 Do you see that?
 3 A. Yes.
 4 Q. Could you then turn to page 426.
 5 Actually, pages 426 through 428.
 6 A. Okay.
 7 Q. Does that appear to be, to your
 8 recollection, the draft to which Mr. Albrecht was
 9 referring in the October 4, 2010 e-mail?
 10 A. That they had written, yes.
 11 Q. And had you had any discussions with
 12 Mr. Albrecht, prior to October 4th, 2010, about
 13 presenting an abstract to the British Association
 14 for surgery of the Knee?
 15 A. We spoke, during the time of the
 16 experiment, in terms of where I was hoping to move
 17 forward with presenting it and publishing it, but to
 18 my recollection nothing else apart from that.
 19 Q. Okay. And this abstract on page -- that
 20 begins on page 426 identifies you, Dr. Hamer, Dr.
 21 Cannon, Mr. Albrecht and Dr. Nachtsheim as the
 22 authors. Do you -- was this abstract ever presented
 23 anywhere?
 24 A. So, this abstract was never presented.
 25 An abstract was presented, which again was

Page 73

1 ANDREW JOHN LEGG
 2 THE EXAMINER: If it helps, your CV shows
 3 that there was a presentation by you and Mr. Hamer
 4 at the 2012 BASK annual meeting --
 5 THE WITNESS: Yes.
 6 THE EXAMINER: -- at which only the two
 7 of you were named?
 8 THE WITNESS: There was one prior to
 9 that.
 10 THE EXAMINER: Well, that was to the
 11 British Hip Society --
 12 THE WITNESS: Okay.
 13 THE EXAMINER: -- the previous year.
 14 THE WITNESS: And who was -- was that
 15 Mr. Cannon?
 16 THE EXAMINER: Mr. Cannon, Mr. Legg and
 17 Mr. Hamer?
 18 THE WITNESS: I do apologize. It was the
 19 Hip Society meeting.
 20 THE EXAMINER: That was in 2011 and then
 21 the same or a similar document to the BASK in 2012?
 22 THE WITNESS: So, the first presentation
 23 refers to the first publication, which we're calling
 24 the "human"; and the second one is for the
 25 mannequin.

19 (Pages 70 to 73)

1 ANDREW JOHN LEGG
 2 THE EXAMINER: Thank you. Sorry, 428?
 3 BY MR. GORDON:
 4 Q. Yes. If you look at 428, I know the
 5 photocopy is not terribly good, but I would like you
 6 to compare that to the photos on page 407. You
 7 know, that may not be the better representation of
 8 that. I think if you look at page 491 -- I'm sorry
 9 I didn't direct your attention to that before -- and
 10 compare that top row of photos, the top row of
 11 photos, onto the second page of your 2013 study page
 12 407 --
 13 THE EXAMINER: 407 with 491.
 14 BY MR. GORDON:
 15 Q. Yes.
 16 Are those the same pictures?
 17 A. Yes.
 18 Q. So, who took those pictures?
 19 A. I don't recall whether I took them, or
 20 Mr. Albrecht took them, but they were taken with his
 21 camera.
 22 Q. And was it Mr. Albrecht who had selected
 23 them for inclusion in the draft BASK abstract
 24 presentation?
 25 A. There wouldn't -- I don't... The images

1 ANDREW JOHN LEGG
 2 that he questions, I don't recall. They would have
 3 been in his abstract, yes.
 4 Q. And I think if you look at pages 291
 5 through -- excuse me, 456 through 491. I probably
 6 should have referred you to that earlier.
 7 A. Yes.
 8 Q. No, I am sorry. 476 through 491.
 9 Actually the second page of that page (page 477)
 10 refers to an abstract re-do. Does this appear -- do
 11 you know if this is the second draft that
 12 Mr. Albrecht did incorporating your comments and
 13 suggestions?
 14 MS. ZIMMERMAN: Object to form.
 15 THE EXAMINER: You can answer.
 16 THE WITNESS: I don't know, is the answer
 17 to that. I don't know.
 18 BY MR. GORDON:
 19 Q. Okay. Now if you turn to the back page
 20 of this draft (page 491), those photos, they are the
 21 same as the ones on page -- the second page of your
 22 2013 study page 407?
 23 A. Yes.
 24 Q. Who selected those photos?
 25 A. For what --

1 ANDREW JOHN LEGG
 2 Q. Well --
 3 A. -- for this or for mine?
 4 Q. Start with the Albrecht draft?
 5 A. Either -- well, one of the -- they
 6 selected it; I don't know whether it was Mark or
 7 Mr./Dr. Nachtsheim.
 8 Q. So, when you wrote your 2013 paper you
 9 selected the same photos?
 10 A. I selected the photos, which I believed
 11 depicted the, what -- our findings the best. They
 12 turned out to be the same, or very similar photos,
 13 because it's very clear what happened so they all
 14 look the same.
 15 THE EXAMINER: If I could use the
 16 vernacular: You didn't simply lift them out of
 17 their draft, you made a selection from the photos
 18 you had --
 19 THE WITNESS: Correct.
 20 THE EXAMINER: -- and they choose to be
 21 similar or identical?
 22 THE WITNESS: Yes.
 23 BY MR. GORDON:
 24 Q. Back to the 2013 paper, same page where
 25 the pictures are, I guess, in 407. In the left-hand

1 ANDREW JOHN LEGG
 2 column towards the beginning you say, just above
 3 "Experimental design":
 4 "All investigations were undertaken over
 5 one day in a single theatre, with the same equipment
 6 and investigators".
 7 A. Correct.
 8 Q. And that would -- is that anyone other
 9 than you and Mr. Albrecht?
 10 A. No.
 11 Q. Who set up the neutral-buoyancy helium
 12 soap bubble generator?
 13 THE EXAMINER: Sorry, where is that?
 14 MR. GORDON: Under air -- just going,
 15 keeping down a little bit. "Airflow visualisation".
 16 THE WITNESS: He did.
 17 BY MR. GORDON:
 18 Q. And who operated the digital camera?
 19 A. He did, although I took some photos, but
 20 again it was his camera.
 21 Q. Did -- how were the images stored? Were
 22 they shared? Did he give you --
 23 A. They were on his card, which he then
 24 e-mailed them through to me.
 25 Q. How many pictures did he e-mail to you?

Page 78

1 ANDREW JOHN LEGG
 2 A. I don't recall. There were many.
 3 Q. Okay. In this second study, the 2000 --
 4 the mannequin study -- did you also use any type of
 5 device to see if you could collect bacteria?
 6 A. No.
 7 Q. You did the mannequin study. Which did
 8 you do first, the Bair Hugger or the HotDog?
 9 A. It was random how we did it. Randomly
 10 generated. So, we set them up so there was not a
 11 pattern that flowed.
 12 Q. How much time was lapsed between the
 13 completion of one and the starting of the next one?
 14 A. Again, I don't recall. We ensured that
 15 the temperature had returned to the ambient
 16 temperature, which was measured outside the theatre,
 17 and that the particle levels were back down to
 18 normal so they had equalized.
 19 Q. Okay. The Rocket PS23 Smoke Machine,
 20 that generated the 0.3-micron glycerol tracer
 21 particles, that was one of the pieces of equipment
 22 supplied by the HotDog Company?
 23 A. Correct.
 24 Q. Who set that up?
 25 A. That was set up by both -- I had used it

Page 80

1 ANDREW JOHN LEGG
 2 first study.
 3 Q. And did Mr. Albrecht take back with him,
 4 after you were done with this mannequin experiment,
 5 the equipment he bought: The camera; the bubble
 6 generator?
 7 A. Correct.
 8 Q. The number -- the particle numbers that
 9 you reflect in your 2013 paper would be at page 408.
 10 A. Yes.
 11 Q. They appear to be close, but not
 12 identical, to the numbers in the Albrecht drafts and
 13 I am wondering is that -- did you do more than one
 14 counting?
 15 THE EXAMINER: What is the comparison
 16 between -- 408 and? 439 to 440?
 17 MR. GORDON: We can go to that one. That
 18 is fine, I will find the specific pages in it. Page
 19 439 to 440.
 20 THE EXAMINER: Okay.
 21 BY MR. GORDON:
 22 Q. And the numbers that I am looking at are
 23 2,000,000 -- on the Albrecht draft 2,173,000 --
 24 A. What page is that again?
 25 Q. 439. He's got 2,173,000.

Page 79

1 ANDREW JOHN LEGG
 2 before because I had used it in my previous study.
 3 Q. Did you still have it, or had you sent it
 4 back and --
 5 A. No, I still had it. I still had it.
 6 Q. When you were done with the mannequin
 7 study did you keep -- did you keep the Rocket PS23
 8 Smoke Machine, or did it go back to the HotDog
 9 people?
 10 A. I don't have it, so I don't recall, but I
 11 presume that the rep had picked it up. I
 12 re-contacted him and gave it back to him, but I
 13 don't have it now.
 14 Q. So, what if any equipment did
 15 Mr. Albrecht bring with him?
 16 A. A camera, a light source, the bubble
 17 machine, and I don't remember whether we used the
 18 temperature probe which I had from the first study,
 19 or whether we used the temperature probe which he
 20 had as well.
 21 Q. How about that particle counter? Was
 22 that not used?
 23 A. No, that was used and I'm pretty sure
 24 that I still had that for the second study so we
 25 would have probably used the one that I had from the

Page 81

1 ANDREW JOHN LEGG
 2 A. Yes.
 3 Q. And 2,172,000?
 4 A. Yes.
 5 Q. And you have 2,174,000?
 6 A. Yes. He's referring to the difference,
 7 whereas I put the exact figures. So if you take
 8 2,174,000 and you take 2,000 away you get his
 9 figure. If you take 1,000 away, you get -- he's put
 10 difference but I've put exact.
 11 Q. But they are the same numbers?
 12 A. The same numbers, yes. It was the same
 13 experiment.
 14 Q. But they're different "p" values given?
 15 A. So, again, I had the original data so he,
 16 or his -- where he did statistics and I did
 17 statistics.
 18 Q. So, you did your own statistics --
 19 A. Yes.
 20 Q. -- for the 2013. You, yourself, or did
 21 you have the assistance of any statistician?
 22 A. No. I used software, which is SPS
 23 software, and did some statistics on the paper.
 24 Q. Now, on your 2013 paper page 408, on the
 25 second column sort of in the middle, you say:

21 (Pages 78 to 81)

Page 82

1 ANDREW JOHN LEGG

2 "There was a little or no waste heat
 3 created from the radiant device which was well
 4 insulated on the side not in contact with the
 5 patient".

6 And we can find it in here, but the use
 7 of the phrase "waste heat" is also in the Albrecht
 8 draft. Prior to your writing this paper, if we're
 9 2013, had you yourself used the phrase "waste heat"
 10 to describe anything in connection with forced-air
 11 warming?

12 A. I don't recall.

13 Q. Was that a -- is that a term with which
 14 you were familiar prior to your working with
 15 Mr. Albrecht?

16 A. I don't know. I don't know. It's a term
 17 I use, but it's -- I don't know when I started to
 18 use it.

19 Q. The next line after that one is:

20 "It does not appear that the forced-air
 21 warming device itself blows potentially contaminated
 22 warm air directly into the Howorth enclosure".

23 Did I read that correctly?

24 A. Yes.

25 Q. What led you to that conclusion?

Page 83

1 ANDREW JOHN LEGG

2 A. But this specifically applies to the
 3 theatre set-up that we had, that the drape comes all
 4 the way down to the ground, and what we looked at
 5 was what was heated, it wasn't that particles were
 6 being blown elsewhere. So, the drape was being
 7 heated, which made the hot air rise; it wasn't that
 8 air was being blown in which would do something else
 9 to the airflow.

10 THE EXAMINER: This is where you had the
 11 curtain or drapes coming down the one meter from the
 12 floor.

13 THE WITNESS: Correct, yes.

14 BY MR. GORDON:

15 Q. In the Albrecht --

16 A. No, sorry. Sorry. No. So that the
 17 front, which essentially blocks off where the
 18 patient's head is, the drape comes all the way down
 19 to the floor.

20 THE EXAMINER: Okay. Thank you, I
 21 understand.

22 BY MR. GORDON:

23 Q. In the Albrecht draft it indicates that
 24 there were two different set-ups. One where the
 25 drape was coming down from the ceiling; one where it

Page 84

1 ANDREW JOHN LEGG
 2 was just laid over the patient?

3 A. Correct.

4 Q. What -- why did you decide not to include
 5 information about the results when you had the drape
 6 laid over the patient?

7 A. Because --

8 MS. ZIMMERMAN: Object to form.

9 THE WITNESS: -- that is not how I or
 10 Mr. Hamer, or anybody in our hospital at the time,
 11 would have conducted an operation and, therefore, we
 12 felt that it was important just to perform the
 13 experiments how we performed the operations.

14 BY MR. GORDON:

15 Q. And the bottom of page 408 of your 2013
 16 study, you say:

17 "If the wall extension and vertical drape
 18 that exclude the anaesthetist are not in place, the
 19 production of the waste heat may not be as important
 20 because the air can leave the enclosure more
 21 easily".

22 Did I read that correctly?

23 A. Yes.

24 Q. And in your current set-up there are no
 25 wall extensions. Correct?

Page 85

1 ANDREW JOHN LEGG

2 A. Yes.

3 Q. And -- yes, I am correct?

4 A. Yes, you're correct. Yes, sorry.

5 Q. And is the vertical drape that you
 6 describe in the 2013 study, is that the same that
 7 you use now, or is there -- is it configured
 8 differently?

9 A. It is very, very similar.

10 Q. And the last page of your 2013 study,
 11 page 409. You say:

12 "This study does not show that forced-air
 13 warming increases the risk of infection -- only that
 14 in certain types of theatre set-up it can
 15 significantly disrupt unidirectional airflow and
 16 draw particles from the potentially contaminated
 17 area below the surgical field. This is a concern".

18 Did I read that correctly?

19 A. That is correct.

20 Q. What was it that led you to conclude that
 21 that would -- that your study did not show that
 22 forced-air warming increased the risk of infection?

23 A. Because we didn't show that. We didn't
 24 measure infection.

25 Q. And in this study you didn't measure

1 ANDREW JOHN LEGG
 2 bacteria either. Right?
 3 A. No.
 4 Q. I mean, it is obvious, but you can't have
 5 an infection without bacteria. Right? At least a
 6 bacterial infection?
 7 A. True.
 8 Q. And are there other infections that you
 9 were referring to, other than bacterial infections?
 10 A. No.
 11 Q. In the conflicts disclosure, or however
 12 you characterize it, on the 2013 Study, you say:
 13 "No benefits in any form have been
 14 received or will be received from a commercial party
 15 related directly or indirectly to the subject of
 16 this article".
 17 Did I read that correctly?
 18 A. Correct.
 19 Q. Did you consider HotDog to not be a
 20 company that was a commercial party, directly or
 21 indirectly related to the subject of the article?
 22 A. We didn't benefit financially from the
 23 experiment.
 24 Q. Did you consider the use of the equipment
 25 that HotDog loaned to you to be a benefit?

1 ANDREW JOHN LEGG
 2 Q. And even though you ended up writing up
 3 the study yourself, did you think that there might
 4 be some utility or some value to a reader of the
 5 paper to know that an employee of the HotDog Company
 6 assisted you in actually setting up and running the
 7 experiment?
 8 A. The experiment and -- the set-up was
 9 already there and, therefore, things weren't changed
 10 with Mr. Albright's (sic) input. What we gained is
 11 the picture of how airflow works; nothing was
 12 changed. So, it didn't occur me, at the time I
 13 didn't think that it was important to put that down
 14 and that it's a conflict of interest.
 15 Q. Did you have a discussion with Mr. Hamer
 16 about whether you should disclose something about
 17 Mr. Albright's involvement?
 18 A. I don't recall -- I recall we spoke about
 19 the paper, but not in terms of the conflict of
 20 interest, that statement at the end.
 21 Q. I asked you before about references in
 22 the first paper, either 13 references on the second
 23 paper. Did you do the research to compile those --
 24 A. I did.
 25 Q. -- as well. Mr. Albright didn't provide

1 ANDREW JOHN LEGG
 2 A. Without it we couldn't have done the
 3 study and wouldn't have done the study.
 4 Q. Did you consider Mr. Albrecht's
 5 involvement and assistance to be a benefit?
 6 A. Yes. Without it we wouldn't have been
 7 able to do the study because of the equipment.
 8 Q. Did you have any discussions with Dr.
 9 Hamer about whether you should disclose in this
 10 conflicts disclosure the involvement of
 11 Mr. Albrecht?
 12 A. I don't -- I don't recall having that...
 13 About him being on the paper, or whether we should
 14 have disclosures about using their equipment? Which
 15 do you mean?
 16 Q. Take them one at a time.
 17 A. About his inclusion in the paper, we did
 18 speak about it and from their e-mail discussions we
 19 distanced ourselves as they said we should write the
 20 paper up independently.
 21 In terms of the disclosures of conflicts
 22 of interest or using the equipment, I didn't think,
 23 I believe that -- it didn't occur to me, I should
 24 say, that by using their equipment would have a
 25 conflict of interest.

1 ANDREW JOHN LEGG
 2 any copies of papers to you?
 3 A. No.
 4 THE EXAMINER: Are you going away from
 5 that, from that document?
 6 MR. GORDON: I probably shouldn't, no --
 7 THE EXAMINER: I want to see to see
 8 whether I have got this right now, Mr. Legg, because
 9 my understanding before I came here today was
 10 different. You have got a lamina downwards airflow.
 11 THE WITNESS: Correct.
 12 THE EXAMINER: Keeping the temperature
 13 down. Now you're saying that heating, or convection
 14 rising from the blanket --
 15 THE WITNESS: It doesn't -- sorry, it
 16 doesn't keep the temperature down, it is airflow.
 17 THE EXAMINER: But convection rising from
 18 the blanket --
 19 THE WITNESS: Correct.
 20 THE EXAMINER: -- can interfere with that
 21 airflow and potentially allow particles to rise from
 22 below the operative site. Is that right?
 23 THE WITNESS: Correct. With a very
 24 specific theatre set-up.
 25 THE EXAMINER: I am sure you do. I had

Page 90

1 ANDREW JOHN LEGG
 2 previously understood that it was some sort of
 3 rising of warm air from the floor up to the site,
 4 but I am wrong about that?

5 THE WITNESS: That is not what -- our
 6 conclusion, that is not my belief. My belief is
 7 that it is through warming of the drape that causes
 8 particles to rise.

9 THE EXAMINER: I understand, thank you.
 10 You have corrected my understanding today.

11 Now, what have we got on the tape?

12 THE VIDEOGRAPHER: Five minutes.

13 THE EXAMINER: Would it be sensible to
 14 stop and change the tape or do you think you have
 15 got a topic you can do in five minutes?

16 MR. GORDON: I'm going to be done in five
 17 minutes.

18 THE EXAMINER: Let's get it done. Five
 19 minutes and then we'll change the tape.

20 BY MR. GORDON:

21 Q. Did Mr. Albrecht set up the smoke
 22 generator?

23 A. There is not much to set up, I can't
 24 recall whether he did or not. I had used it before.
 25 You turn it on, you put detergent in it,

Page 92

1 ANDREW JOHN LEGG
 2 A. No. I have spoken to people about my
 3 concerns with waste heat, but I think you can -- if
 4 you deal with the waste-heat issue I don't think
 5 that the problem is with forced-air warming.

6 MR. GORDON: Thank you.

7 THE EXAMINER: Thank you. Let's take a
 8 break. Change the tape.

9 THE VIDEOGRAPHER: End of DVD one, volume
 10 one of the deposition of Mr. Andrew Legg. Going off
 11 the record at 4.37. Recording has stopped.

12 (Recess taken)

13 THE VIDEOGRAPHER: This is the beginning
 14 of DVD 2 in volume 1 of the deposition of Mr. Andrew
 15 Legg. We're back on the record at ten-to five.

16 EXAMINATION BY MS. ZIMMERMAN:

17 Q. Mr. Legg, I will do my best to refer to
 18 you as "mister" because, of course, in the United
 19 States "doctor" is a sign of respect.

20 You have not met with myself before
 21 today. Is that correct.

22 A. That is correct, no.

23 Q. And you have not met with anybody else
 24 who represents Plaintiffs in the United States

Page 91

1 ANDREW JOHN LEGG
 2 essentially, so I don't recall whether it was
 3 himself or myself, but I was perfectly capable of
 4 doing that.

5 Q. Did you recall whether the velocity was
 6 adjustable?

7 A. No.

8 Q. Did you tell Mr. Albrecht about your
 9 negative results from the agar plates that you had
 10 done in the first experiment?

11 A. Again, I don't recall having a
 12 conversation with him, but there is no reason why I
 13 wouldn't have done through just discussion
 14 throughout the day. We had spoke about the study
 15 previously so, yes, I'm sure I would have done.

16 Q. Do you recall Mr. Albrecht telling you
 17 anything to the effect of that they had also tried
 18 to find bacteria and couldn't -- or weren't
 19 successful in culturing out any bacteria?

20 A. I don't remember, but that wouldn't
 21 surprise me.

22 Q. Since moving to your current hospital did
 23 you ever suggest to anyone that it would be
 24 advisable to switch from using the Bair Hugger to
 25 some other form of warming?

Page 93

1 ANDREW JOHN LEGG
 2 litigation?

3 A. That is correct.

4 Q. You have had no e-mail conversations with
 5 anybody representing patients in the US. Correct?

6 A. No.

7 Q. Your background is in orthopedics. Is
 8 that right?

9 A. That is correct.

10 Q. We were just provided today a copy of
 11 your curriculum vitae. Do you have a copy of that
 12 as well?

13 A. I do, yes.

14 Q. Could you take a minute, as this video
 15 may well be played to the judge and potentially the
 16 jury in the United States, could you take a minute
 17 to introduce yourself to the judge and the jury and
 18 tell us a little bit about your medical training?

19 A. Okay. My name is Andrew Legg and I am
 20 currently a consultant orthopedic surgeon in
 21 Rotherham, where I have been consultant since July
 22 this year. Prior to that I did a year's Fellowship,
 23 which is specialist higher level training; six
 24 months in New Zealand; and six months in Coventry.
 25 Prior to that I was on an orthopedic rotation for

<p style="text-align: center;">Page 94</p> <p>1 ANDREW JOHN LEGG 2 eight years in the South Yorkshire region, with some 3 time in East and West Yorkshire, which in the States 4 is a residency. The two years prior to that, which 5 were, I call, a Foundation Year one and two, which 6 are the first two years after qualifying as a 7 doctor, were in Huddersfield and Bradford, so in the 8 Yorkshire region.</p> <p>9 Q. Is some of this what we might call, in 10 the United States, post-doctoral research?</p> <p>11 A. I'm not fully familiar in terms of 12 post-doctoral.</p> <p>13 Q. So, we have a university program.</p> <p>14 A. Yes.</p> <p>15 Q. You went to university?</p> <p>16 A. Yes, correct.</p> <p>17 Q. And then you went to medical school after 18 that?</p> <p>19 A. No. We just go to medical -- some people 20 do go to university, do a degree and then go to 21 medical school. Whereas the vast majority still go 22 straight to medical school, so I went to medical 23 school at the age of 18. As part of my five years 24 as a medical student I took a year out and did a 25 degree, so I was at university for six years. In</p>	<p style="text-align: center;">Page 95</p> <p>1 ANDREW JOHN LEGG 2 that period of time I got a BSc (Bachelor of Science 3 degree) and also my medical degree, which I finished 4 in 2005.</p> <p>5 Q. Okay. Then you have a degree or some 6 training from the Royal College of Surgeons in 7 Edinburgh?</p> <p>8 A. Yes. So that is part of my surgical 9 training. So, you do a MRCS, which is a Member of 10 the Royal College of Surgeons, and then finally you 11 do another exam, which is an FRCS but that is 12 specifically to orthopedics.</p> <p>13 Q. Right. So, it is a sub-specialty 14 training in orthopedics?</p> <p>15 A. Correct, yes.</p> <p>16 Q. And you have completed that?</p> <p>17 A. Yes.</p> <p>18 Q. Do you act as an instructor, at this 19 point, for other orthopedic trainees?</p> <p>20 A. I do, yes.</p> <p>21 Q. And what does that involve?</p> <p>22 A. That involves -- I haven't specifically 23 got one person under me currently. There are many 24 junior doctors which you have, which involve ward 25 rounds, looking after my patients, on-call</p>
<p style="text-align: center;">Page 96</p> <p>1 ANDREW JOHN LEGG 2 responsibilities when we receive acute trauma 3 patients, and also in theatre and clinics, 4 supervising them and guiding them appropriately.</p> <p>5 Q. Right. When we're done going through 6 your curriculum vitae I will offer this copy to the 7 Court Reporter to mark as, I guess, Exhibit 2 -- do 8 we only have one exhibit so far. All right.</p> <p>9 From time to time have you published 10 literature in the medical field?</p> <p>11 A. Yes.</p> <p>12 Q. Could you tell me about that?</p> <p>13 A. So, two of the publications which we have 14 today, and then there is a third publication, which 15 I more recently published, which is in 2015, which 16 is a published paper on distal bicep, where the 17 bicep tendon is attached at the elbow essentially.</p> <p>18 Q. I should ask: Do you have a specialty 19 inside of orthopedics?</p> <p>20 A. Knee surgery is my specialty.</p> <p>21 Q. Okay. It is my understanding that 22 infection prevention is a critical issue for 23 orthopedic surgeons. Is that consistent with your 24 practice?</p> <p>25 A. Yes, correct.</p>	<p style="text-align: center;">Page 97</p> <p>1 ANDREW JOHN LEGG 2 Q. Would you agree that orthopedic surgeons 3 are -- pardon me orthopedic surgery patients are 4 typically at higher risk for infection than perhaps 5 a different type of surgery?</p> <p>6 MR. GORDON: Objection. Exceeds the 7 scope of permitted examination.</p> <p>8 THE WITNESS: Should I answer?</p> <p>9 THE EXAMINER: Not for the moment. Are 10 you maintaining that objection?</p> <p>11 MS. ZIMMERMAN: If you go to page seven 12 of the order, schedule D.</p> <p>13 MR. GORDON: I will withdraw that.</p> <p>14 THE EXAMINER: Okay.</p> <p>15 MR. GORDON: Thank you, I am sorry.</p> <p>16 THE WITNESS: So, I think the 17 consequences, especially with arthroplasty hip and 18 knee replacement surgery, of getting an infection 19 are more significant. In terms of the frequency 20 compared to other operations, I don't think I can 21 comment in terms of how whether it is more frequent 22 or not, but the consequences are much greater, 23 potentially.</p> <p>24 BY MS. ZIMMERMAN:</p> <p>25 Q. Earlier Mr. Gordon asked you about</p>

Page 98

1 ANDREW JOHN LEGG
 2 infection risks. Do you remember those questions?
 3 A. I remember him asking me, I don't
 4 remember what the questions were, I'm afraid.
 5 Q. It has been a long day.
 6 Are you familiar with the term "chain of
 7 infection"?
 8 A. Not specifically, no.
 9 Q. Not specifically. I think that you
 10 testified earlier that bacteria is required for a
 11 bacterial infection.
 12 A. Correct.
 13 Q. Are there any other requirements that you
 14 know of for a bacterial infection?
 15 A. It needs a warm, moist environment and
 16 the ability for the bacteria to replicate,
 17 essentially.
 18 Q. A viable bacteria?
 19 A. Yes. Correct.
 20 Q. And potentially a susceptible host.
 21 Would you agree with that?
 22 A. Yes.
 23 Q. Right. I would like to turn back to your
 24 CV and these articles that you published. Are these
 25 articles in peer-review journals?

Page 99

1 ANDREW JOHN LEGG
 2 A. Correct.
 3 Q. Could you explain to the judge and the
 4 jury in the United States what "peer reviewed"
 5 means?
 6 A. Peer review is essentially a group of
 7 your colleagues, your peers, they are usually senior
 8 colleagues, senior consultants, who have a large
 9 amount of experience in orthopedics and, more
 10 specifically, in the specific field in which the
 11 paper is talking about. They review your research
 12 to make sure that it's of, firstly, high enough
 13 standard to be published in that specific journal;
 14 and also that it's of good enough quality in terms
 15 of what you're actually writing in that report.
 16 Q. Why is the peer-review process important
 17 to someone who is reading the article, for example?
 18 A. It is important to make sure that the
 19 standard of that article is high, and also that the
 20 evidence which is being presented is accurate.
 21 Q. To your knowledge are articles submitted
 22 for peer-review consideration and ultimately turned
 23 down?
 24 A. Many are turned down.
 25 Q. That happens from time to time?

Page 100

1 ANDREW JOHN LEGG
 2 A. Very frequently. The vast majority -- I
 3 couldn't tell you a number -- are refused I would...
 4 MS. ZIMMERMAN: Right. I would like to
 5 turn to --
 6 THE EXAMINER: Are you going to mark that
 7 before you go --
 8 MS. ZIMMERMAN: Yes.
 9 Q. I'm going to turn to the thing we have
 10 called the "human study" thus far, which appears on
 11 page 411 of your materials.
 12 A. Okay.
 13 Q. Just for clarification, I think Mr.
 14 Gordon referred to this throughout his questioning
 15 as a 2011 study. It appears from the notes on the
 16 left-hand side it was submitted for publication in
 17 2011?
 18 A. Yes.
 19 Q. And ultimately published in 2012?
 20 A. That is correct, yes.
 21 Q. So, if we refer to it as 2011 and 2012 we
 22 know that this is the article we're referring to?
 23 A. Yes, correct?
 24 THE EXAMINER: Remind me, is this the
 25 human or the mannequin?

Page 101

1 ANDREW JOHN LEGG
 2 THE WITNESS: Human.
 3 MS. ZIMMERMAN: The human.
 4 Q. Mr. Legg, is this article a peer-reviewed
 5 study?
 6 A. Yes.
 7 Q. And where was it published?
 8 A. It was published in the Journal of Bone
 9 and Joint Surgery.
 10 Q. Is that considered a prominent
 11 publication?
 12 A. Yes.
 13 Q. What did you measure in this study?
 14 A. We measured a number of factors.
 15 Firstly, that they were increased particles and
 16 increased temperature when forced-air warming was
 17 used in our specific theatre set-up, which we used
 18 at the Northern General.
 19 Q. Do you recall questions from Mr. Gordon
 20 about whether a particle count automatically equates
 21 with a bacteria count?
 22 A. Yes.
 23 Q. And you would agree that a particle count
 24 is not necessarily the same as an increased bacteria
 25 count?

<p style="text-align: right;">Page 102</p> <p>1 ANDREW JOHN LEGG 2 A. That's correct. 3 Q. But you would also agree that an 4 increased particle count is of concern to an 5 orthopedic surgeon. 6 A. That is correct and that is what I 7 concluded. 8 Q. Why? 9 A. Because particles can carry bacteria and, 10 as a result, it could increase the risk of 11 infection. 12 Q. Is that because bacteria kind of 13 hitchhike on a particle? 14 A. Correct. 15 Q. And they can hitchhike on a particle into 16 a surgical site? 17 A. Yes. 18 Q. Would you agree that it is important to 19 reduce the particles in an operating room theatre? 20 A. Yes. 21 Q. And would you agree that it takes only a 22 very small number of microbes to cause infection in 23 an orthopedic surgery patient? 24 MR. GORDON: Object to the form of the 25 question.</p>	<p style="text-align: right;">Page 103</p> <p>1 ANDREW JOHN LEGG 2 THE EXAMINER: I think "microbes" is a 3 term that hasn't yet been used so I don't understand 4 how it fits in with (a) particles and (b) bacteria. 5 MS. ZIMMERMAN: Sure. 6 Q. Can "microbes" and "bacteria" be 7 interchangeably -- 8 A. I'm happy to. 9 MS. ZIMMERMAN: -- to understand both 10 ways. 11 THE EXAMINER: Okay. 12 BY MS. ZIMMERMAN: 13 Q. Would you agree that it only takes a very 14 small number of bacteria, or microbes, to cause a 15 potentially devastating infection in an 16 orthopedic-surgery patient? 17 MR. GORDON: Object to the form of the 18 question. 19 THE EXAMINER: You can answer. 20 THE WITNESS: Yes. 21 BY MS. ZIMMERMAN: 22 Q. When you were conducting the measurements 23 in this first human study, did you take this -- did 24 you make any changes as between the measurements for 25 the Bair Hugger and then later with the HotDog?</p>
<p style="text-align: right;">Page 104</p> <p>1 ANDREW JOHN LEGG 2 A. No. 3 Q. With the tools that were doing the 4 measurements? 5 A. Yes -- no. 6 Q. At the end of your paper you conclude: 7 "Further work is required to confirm that 8 unidirectional airflow is disrupted by forced-air 9 warming patient warming devices under our specific 10 experimental theatre set-up and future studies are 11 needed to visualise the airflow over the surgical 12 site". 13 Did I read that correctly? 14 A. Yes. 15 Q. Did you do additional studies? 16 A. The additional study was the second 17 paper. 18 Q. Have you done any other studies beyond 19 the second paper? 20 A. No. 21 Q. Turning next to the mannequin study, 22 which appears starting at page 406, that is the, 23 "Forced-air patient warming blankets disrupt 24 unidirectional airflow", is the title of that study. 25 Do you see that as well?</p>	<p style="text-align: right;">Page 105</p> <p>1 ANDREW JOHN LEGG 2 A. Yes. 3 Q. Was this published in a peer-review 4 journal? 5 A. Yes, it was. 6 Q. Which journal? 7 A. The Bone and Joint Journal. 8 Q. Is that the same as the first study? 9 A. That is correct. 10 Q. Same journal. Before I forget, were the 11 operating rooms the same between the two studies? 12 A. I can't confirm whether -- I don't 13 remember whether they were the same, but it's the 14 same hospital and, therefore, the same -- we presume 15 the same theatre set-up. I can't recall whether it 16 was exactly the right, the same theatre or not. 17 Q. Okay. What did you measure in this 18 mannequin study? 19 A. We measured the same as before. We 20 measured temperature, and we measured particle count 21 and we also visualized the airflow using 22 neutrally-buoyant helium bubbles. 23 Q. Were there three separate types of 24 measurements you were doing? Temperature? 25 A. Yes.</p>

<p style="text-align: right;">Page 106</p> <p>1 ANDREW JOHN LEGG 2 Q. Particle count? 3 A. Yes. 4 Q. And then this bubble machine? 5 A. Correct. 6 Q. And you made each of those three 7 measurements as to three different scenarios. The 8 Bair Hugger -- 9 A. Yes. 10 Q. -- the HotDog, and a control study where 11 there was no heat. Correct? 12 A. Correct. 13 Q. Was there anything changed between when 14 you took the measurements from the Bair Hugger on 15 the temperature, to when you took the measurements 16 for the HotDog regarding temperature? 17 A. No. 18 Q. No change to the machine calculating or 19 measuring the temperature? 20 A. No. 21 Q. Was there any changes at between when you 22 were measuring temperature to the control? 23 A. No. 24 Q. Likewise, was there any changes made to 25 the particle count machine as between when you</p>	<p style="text-align: right;">Page 107</p> <p>1 ANDREW JOHN LEGG 2 measured the forced-air warming blanket and moving 3 to the HotDog? 4 A. No. 5 Q. No changes made to the measurement there? 6 A. No. 7 Q. Again, no changes as between those and 8 the control? 9 A. No. 10 Q. Were there any changes made to the bubble 11 machine between when you had the Bair Hugger on and 12 the HotDog? 13 A. No. 14 Q. Any changes to the bubble machine as 15 between when the Bair Hugger was on and the control? 16 A. No. 17 Q. You did your best to keep all of the 18 measurements tools the same? 19 A. Correct. 20 Q. Why is that important to you? 21 A. Because we wanted to find out one thing 22 and that is the effect of the warming device and if 23 we changed other parameters it could have resulted 24 in a misleading outcome. 25 Q. It was important to you that this paper</p>
<p style="text-align: right;">Page 108</p> <p>1 ANDREW JOHN LEGG 2 be accurate? 3 A. Correct. 4 Q. What was the principle finding in the 5 mannequin study? 6 A. That forced-air warming increased the 7 temperature over the surgical site, but 8 fundamentally caused convection currents to be 9 created and particles drawn up from below the level 10 of the table onto the surgical site. 11 Q. Have you ever had any classes in 12 engineering? 13 A. If you class physics as engineering at 14 school, yes, but otherwise no. 15 Q. Okay. I take it you would not consider 16 yourself an expert in fluid dynamics, for example? 17 A. No. 18 Q. Are you familiar with some of the basic 19 ideas in fluid dynamics? 20 A. Very basic. 21 Q. All right. In this mannequin study, you 22 found 1,000-fold increase in concentration of 23 particles for the forced-air warming blankets, as 24 compared to the radiant warming. Is that correct? 25 A. That is correct.</p>	<p style="text-align: right;">Page 109</p> <p>1 ANDREW JOHN LEGG 2 Q. That was significant to you? 3 A. Yes. 4 Q. Mr. Gordon asked you some questions about 5 the statistical analysis done in connection with 6 this study? 7 A. Yes. 8 Q. Did you do that yourself? 9 A. I did. 10 Q. Do you recall what the p-value was of 11 your calculations? 12 A. It was -- I can't specifically recall. 13 It was very, very low. I will have to have a look. 14 THE EXAMINER: 408. 15 MS. ZIMMERMAN: The p-value is .00 -- 16 A. 001. 17 Q. 2. 18 THE EXAMINER: Where do we find that? 19 MS. ZIMMERMAN: Middle of the first, 20 second full paragraph on page 408. 21 THE EXAMINER: Right, thank you. 22 BY MS. ZIMMERMAN: 23 Q. Is that correct? 24 A. That is correct. 25 THE EXAMINER: Do you want to explain</p>

<p style="text-align: right;">Page 110</p> <p>1 ANDREW JOHN LEGG 2 exactly what a p-value is? 3 THE WITNESS: So a significance is 4 accepted that significance-of is -- well, it is 5 deemed significant, sorry, if I clarify that, if it 6 is less than 0.05 and that is what is accepted. 7 BY MS. ZIMMERMAN: 8 Q. Ultimately at the end of this mannequin 9 study, you and Mr. Hamer write: 10 "This study does not show that forced air 11 warming increases the risk of infection only that in 12 certain types of theatre set-up it can significantly 13 disrupt unidirectional airflow and draw particles 14 from the potentially contaminated area below the 15 sterile surgical field. This is a concern". 16 Did I read that correctly? 17 A. Yes, you did. 18 Q. Did you do any additional studies with 19 respect to the concerns you raised? 20 A. No. 21 Q. Are you familiar with any 3M employees? 22 A. Employees in terms of the gentlemen that 23 were, I met within the study, yes. If they are 24 employees of 3M, I think they are part of 3M 25 company.</p>	<p style="text-align: right;">Page 111</p> <p>1 ANDREW JOHN LEGG 2 Q. Do you deal with anybody at 3M on a 3 regular basis today? 4 A. No. 5 Q. Have you had any other connection with 3M 6 employees outside of the scope of these potential 7 two studies? 8 A. No. 9 Q. Has anyone for 3M ever reached out to you 10 and asked questions about the concerns that you 11 raised in both the human study and the mannequin 12 study? 13 A. About the conclusions that we made? 14 Q. Correct. 15 A. No. 16 Q. Has anyone at 3M ever offered to fund 17 additional research for you? 18 A. No. 19 Q. Are you aware of any other researchers 20 that have looked into the concerns that you raised? 21 A. Yes. Not specifically the concerns that 22 I raised, I think there were some other studies s 23 happening at the similar time, with other authors; 24 some in the north, in the north of England. 25 THE EXAMINER: But nothing, as I</p>
<p style="text-align: right;">Page 112</p> <p>1 ANDREW JOHN LEGG 2 understand it, taking your words, "This is a 3 concern", and saying we must investigate this 4 further? 5 THE WITNESS: No, not that I'm aware. 6 BY MS. ZIMMERMAN: 7 Q. Are you aware that 3M has criticized the 8 paper that you published? 9 A. Until -- 10 THE VIDEOGRAPHER: That is someone 11 joining -- 12 MS. ZIMMERMAN: Is someone on the line? 13 THE VIDEOGRAPHER: I think it is someone 14 checking the line is open. 15 BY MS. ZIMMERMAN: 16 Q. Sorry for the interruption. 17 A. Until I have been involved in this 18 process, no. 19 Q. Prior to learning of the litigation in 20 the United States? 21 A. Sure. 22 Q. Are you aware that 3M sent out 23 characterizations of your studies to many of its 24 customers? 25 A. No.</p>	<p style="text-align: right;">Page 113</p> <p>1 ANDREW JOHN LEGG 2 Q. Would that come as a surprise to you? 3 A. Yes. 4 THE VIDEOGRAPHER: Can I say that this 5 "beep" noise that keeps coming out is someone 6 joining the conference link up and -- 7 THE EXAMINER: I understand that. 8 THE VIDEOGRAPHER: There was a report 9 they had not been getting audio all day, which I 10 would say is probably because we were off-line on 11 the call. 12 THE EXAMINER: Strangely reluctant to 13 identify themselves. 14 MS. ZIMMERMAN: Is anyone on the phone? 15 THE EXAMINER: I don't think we need 16 worry about it. 17 THE VIDEOGRAPHER: They say they are 18 receiving audio okay. 19 BY MS. ZIMMERMAN: 20 Q. Mr. Gordon asked you some questions about 21 your ongoing use of the Bair Hugger in your medical 22 practice. Do you recall that? 23 A. Yes. 24 Q. You testified that you're using a 25 different style of draping your patients now. Is</p>

<p style="text-align: right;">Page 114</p> <p>1 ANDREW JOHN LEGG 2 that correct? 3 A. Similar draping, but the theatre set-up 4 is different. 5 Q. And the changes that you made to your 6 practice now are based on your own research. Is 7 that right? 8 A. That is correct. 9 Q. It is not based on any instruction that 10 you received from 3M? 11 A. No. 12 Q. To your knowledge, are there any 13 instructions on Bair Hugger blankets or materials 14 that instruct how to do draping? 15 A. To set up the Bair Hugger, or the actual 16 draping side of things? 17 Q. Well, the Bair Hugger with the draping? 18 A. Not that I'm aware of, but I must admit I 19 haven't looked for it. 20 Q. Okay. Do you know what an observational 21 study is? 22 A. Yes. 23 Q. How would you explain that to the jury? 24 A. So, an observational study is, I suppose, 25 what is said about looking at something and making</p>	<p style="text-align: right;">Page 115</p> <p>1 ANDREW JOHN LEGG 2 judgment on the basis of what you see. 3 Q. Is that what you did in these particular 4 studies, the mannequin study and the human study? 5 A. Yes, in terms of the observational side 6 of things, yes. 7 Q. You felt that they were both useful, 8 useful studies? 9 A. Very much so. 10 Q. And they both were submitted to highly 11 respected peer-review journals? 12 A. Yes. 13 Q. And they were both accepted for 14 publication? 15 A. Yes. 16 Q. Do you stand by the findings that you 17 published in these studies? 18 A. Absolutely. 19 Q. I don't have anything further? 20 THE EXAMINER: Except you're going to 21 make that an exhibit. 22 MS. ZIMMERMAN: That is right. We will 23 formally offer Exhibit 2. 24 THE VIDEOGRAPHER: We're still on the 25 record.</p>
<p style="text-align: right;">Page 116</p> <p>1 ANDREW JOHN LEGG 2 EXAMINED BY MR. GORDON: 3 Q. The journal which you published, the Bone 4 and Joint Journal, excuse me, are there two 5 different versions of it -- an American one and a 6 British one? 7 A. There is. Yes. 8 Q. Which one did you publish? 9 A. The British. 10 Q. Do you have any idea what the impact 11 score of the Bone and Joint Journal of Britain is? 12 A. I don't know, no. 13 Q. Okay. Counsel asked you about your 14 discussion about the potential for particles to move 15 bacteria to the surgical site. Based on your 16 research do you have any reason to think that that 17 concern is anything other than a theoretical 18 concern? 19 A. It's only a theoretical concern because I 20 didn't prove it. 21 Q. Okay. Even with 1,000-fold increase in 22 the particle counts that you saw, the agar testing 23 that the hospital used routinely to see if the OR 24 was okay, it passed that -- it met those standards? 25 MS. ZIMMERMAN: Object to form.</p>	<p style="text-align: right;">Page 117</p> <p>1 ANDREW JOHN LEGG 2 MR. GORDON: Correct? 3 THE EXAMINER: Answer. 4 THE WITNESS: Yes, it did, but you're 5 getting things slightly confused. The 1,000-fold is 6 partly because we introduced particles onto the 7 floor in the second study, so we exaggerated the 8 difference. 9 BY MR. GORDON: 10 Q. Even with that exaggerating difference, 11 agar plate still didn't grow out -- 12 A. No. 13 Q. -- greater than one CF unit? 14 A. No. 15 Q. Okay. I was a little confused about the 16 reference to 3M employees. Were you saying that 17 there were 3M employees involved in either of your 18 studies? 19 A. I don't know exactly who Albright (sic) 20 and Augustine worked for in addition to HotDog in 21 terms of they manufacture the HotDog, but they have 22 no -- if they're not part of 3M, no, is the answer 23 to that. 24 Q. Did you know at the time that Augustine 25 and Albrecht were affiliated with HotDog?</p>

<p style="text-align: right;">Page 118</p> <p>1 ANDREW JOHN LEGG 2 A. Yes. 3 Q. Did you know at the time that HotDog was 4 a competitor of the Bair Hugger? 5 A. Yes. 6 Q. In your hospital is the orthopedic 7 surgeon responsible for setting up the draping and 8 the warming device? 9 A. The warming device is usually applied 10 from the anaesthetic side, but I would, I make sure 11 it is where I want it to be, and then I set up the 12 draping side of things.</p> <p>13 THE EXAMINER: You personally, or do you 14 instruct someone else how to do it?</p> <p>15 THE WITNESS: Me personally with somebody 16 else.</p> <p>17 BY MR. GORDON:</p> <p>18 Q. In terms of -- what role, if any, does 19 the anesthetist, or I guess you say the 20 "anesthetist --"</p> <p>21 A. Anesthetist.</p> <p>22 Q. -- have in determining what type of 23 warming to use in the configuration of it?</p> <p>24 A. None. In most, well most hospitals I 25 have worked in there is only the Bair Hugger and,</p>	<p style="text-align: right;">Page 119</p> <p>1 ANDREW JOHN LEGG 2 therefore, warming device is very important. It 3 goes on the torso, I move it and instruct them if it 4 is too low down or too high up that I am concerned. 5 Q. Your hospital is part of the NHS. 6 Correct? 7 A. Correct. 8 Q. As part of the NHS are you required to 9 report surgical-site infections from the knee and 10 joint replacements? 11 A. Yes. 12 Q. In the time that you have been affiliated 13 with your current hospital using Bair Hugger, have 14 those infection rates been high relative to other 15 hospitals--- 16 MS. ZIMMERMAN: Object to the scope. 17 This is outside the scope of cross. Beyond the 18 scope of cross. 19 THE EXAMINER: It does seem to go 20 somewhat beyond what was questioned about in 21 cross-examination. 22 THE WITNESS: Can I answer or not? 23 THE EXAMINER: If you're not going to 24 take this any further, Mr. Gordon, I will allow the 25 witness to answer the question.</p>
<p style="text-align: right;">Page 120</p> <p>1 ANDREW JOHN LEGG 2 BY MR. GORDON: 3 Q. Yes. All I want to know is where the 4 hospital stands in relationship to others? 5 A. No, is the answer. It hasn't increased. 6 (Reporter clarification) 7 Increased. 8 Q. And compared to other hospitals in the 9 NHS it is not an outlier? 10 A. No. 11 MS. ZIMMERMAN: Objection: Foundation. 12 MR. GORDON: Thank you. No further 13 questions. 14 THE EXAMINER: Thank you very much. That 15 concludes your examination: 16 THE VIDEOGRAPHER: This is the end of DVD 17 2 in volume 1 of the deposition of Mr. Andrew Legg. 18 We're going off the record at twenty-past five. 19 THE EXAMINER: Thank you both. 20 THE VIDEOGRAPHER: Excuse me, we're back 21 on the record for the production -- we're staying 22 on... We need to put the production order on the 23 record, they have asked us, since this is the first 24 deposition. I believe that, Mr. Gordon, you want a 25 synchronized DVD. Is that correct?</p>	<p style="text-align: right;">Page 121</p> <p>1 ANDREW JOHN LEGG 2 MR. GORDON: I don't know that I want 3 synchronized. What is that? 4 THE VIDEOGRAPHER: Synchronized to the 5 transcript. 6 MR. GORDON: I don't. 7 MS. ZIMMERMAN: It's closed captioning at 8 the bottom. 9 THE VIDEOGRAPHER: Do you want that? 10 MS. ZIMMERMAN: I don't think we need it. 11 THE VIDEOGRAPHER: Not at this point? 12 MS. ZIMMERMAN: Not at this point. Yes. 13 THE VIDEOGRAPHER: Both the other two 14 parties-- 15 MR. GORDON: I don't want it at the -- I 16 don't normally. 17 THE VIDEOGRAPHER: Just the court report 18 and the exhibits. Anything else? 19 MR. ASSAAD: And expedite. Expedite by 20 tomorrow? 21 THE COURT REPORTER: By tomorrow? 22 MS. ZIMMERMAN: Is it a possibility, is 23 what he meant to ask. 24 THE COURT REPORTER: Maybe by Sunday. 25 THE VIDEOGRAPHER: Read and sign.</p>

Page 122

1 ANDREW JOHN LEGG
 2 MS. ZIMMERMAN: Read and sign.
 3 THE VIDEOGRAPHER: ASCIIIs. We're still
 4 doing that.
 5 MR. ASSAAD: I guess the question I have
 6 is if it's not going to get until Sunday I won't
 7 expedite it. If you can get before Sunday.
 8 THE VIDEOGRAPHER: Okay. We're finished
 9 at 5.22. Recording has stopped.
 10 (Whereupon the deposition concluded.)
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Page 123

1 CERTIFICATE OF DEPONENT
 2
 3
 4
 5 I, ANDREW JOHN LEGG, hereby certify that I have read
 6 the foregoing pages, numbered 1 through 117, of my
 7 deposition of testimony taken in these proceedings
 8 on Thursday, December 1, 2016, and, with the
 9 exception of the changes listed on the next page
 10 and/or corrections, if any, find them to be a true
 11 and accurate transcription thereof.
 12
 13
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 17
 18
 19
 20
 21
 22
 23 Signed:
 24 Name: ANDREW JOHN LEGG
 25 Date:

Page 124

1 CERTIFICATE OF COURT REPORTER
 2
 3
 4 I, VICTORIA MARIE DAVIES LLB(Hons), Member of the
 5 British Institute of Verbatim Reporters, hereby
 6 certify that the testimony of the witness ANDREW
 7 JOHN LEGG in the foregoing transcript, numbered
 8 pages 1 through 117, taken on Thursday, December 1,
 9 2016 was recorded by me in machine shorthand and was
 10 thereafter transcribed by me; and that the foregoing
 11 transcript is a true and accurate verbatim record of
 12 the said testimony.
 13
 14 I further certify that I am not a relative,
 15 employee, counsel or financially involved with any
 16 of the parties to the within cause, nor am I an
 17 employee or relative of any counsel for the parties,
 18 nor am I in any way interested in the outcome of the
 19 within cause.
 20
 21
 22
 23 Signed:
 24 VICTORIA MARIE DAVIES
 25 Dated: December 13, 2016

Page 125

1 NAME OF CASE:
 2 DATE OF DEPOSITION:
 3 NAME OF WITNESS:
 4 Reason Codes:
 5 1. To clarify the record.
 6 2. To conform to the facts.
 7 3. To correct transcription errors.
 8 Page ____ Line ____ Reason ____
 9 From _____ to _____
 10 Page ____ Line ____ Reason ____
 11 From _____ to _____
 12 Page ____ Line ____ Reason ____
 13 From _____ to _____
 14 Page ____ Line ____ Reason ____
 15 From _____ to _____
 16 Page ____ Line ____ Reason ____
 17 From _____ to _____
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 19 From _____ to _____
 20 Page ____ Line ____ Reason ____
 21 From _____ to _____
 22 Page ____ Line ____ Reason ____
 23 From _____ to _____
 24
 25 _____

A	adjusted 22:18 adjustments 22:15 admissible 21:22 admit 114:18 advice 53:7 54:8 55:25 70:2 affordable 91:24 advised 54:11 57:10 59:8 affiliated 117:25 119:12 Affirmed 3:6 23:5 23:13 afford 14:2 afforded 14:22 affords 11:10 afraid 43:19 98:4 aftemoon 23:16 agar 53:14,22 54:5 54:12,19 55:4 57:4 58:9 59:16 91:9 116:22 117:11 age 94:23 aggressive 66:21 ago 30:10 agree 97:2 98:21 101:23 102:3,18 102:21 103:13 agreed 66:19 agreement 10:3 ahead 26:6 air 1:5 4:21 41:17 43:8 50:21,25 51:8 77:14 82:22 83:7,8 84:20 90:3 110:10 air's 53:16 airflow 34:17 35:8 35:10,11 41:18 43:9,17 46:9 77:15 83:9 85:15 88:11 89:10,16,21 104:8,11,24 105:21 110:13 Albrecht 31:3,5 32:6,14 33:10,14 33:23 35:4,12	44:1 45:1 46:1 47:1 48:1 49:1 50:1 51:1 52:1 53:1 54:1 55:1 56:1 57:1 58:1 59:1 60:1 61:1 62:1 63:1 64:1 65:1 66:1 67:1 68:1 69:1,9 70:1 71:1 72:1 73:1 74:1 75:1 76:1 77:1 78:1 79:1 80:1 81:1 82:1 83:1 84:1 85:1 86:1 87:1 88:1 89:1 90:1 91:1 92:1,10,14 93:1 93:19 94:1 95:1 96:1 97:1 98:1 99:1 100:1 101:1 102:1 103:1 104:1 105:1 106:1 107:1 108:1 109:1 110:1 111:1 112:1 113:1 114:1 115:1 116:1 117:1 118:1 119:1 120:1,17 121:1 122:1 123:5,24 124:5 anesthetist 118:19 118:20,21 angle 61:7 annual 70:25 73:4 answer 35:6 37:19 39:4 49:12 57:8 59:14 75:15,16 97:8 103:19 117:3 117:22 119:22,25 120:5 anticipate 10:17 anybody 84:10 92:24 93:5 111:2 anyway 16:5 apart 45:14 71:18 apologize 21:18 27:3 64:4 73:18 apparently 15:13 appear 6:14 9:18	15:22,23 58:12 71:7 75:10 80:11 82:20 APPEARANCES 2:4 appears 100:10,15 104:22 applicable 12:23 applicant 12:12 application 7:22 applied 8:4 60:22 118:9 applies 83:2 apply 8:2 19:20 appointed 6:5 approach 10:17 12:3 approached 20:6 appropriate 7:7 14:20 65:18 appropriately 96:4 area 40:14 85:17 110:14 ARGUMENT 3:5 Arizant 2:16 4:23 5:15 arms 15:16,21 arrangements 30:21 arranging 20:18 arthoplasty 97:17 arthroplasties 46:5 article 43:5 65:9 86:16,21 99:17,19 100:22 101:4 articles 98:24,25 99:21 asbestosis 20:10 ascendancy 24:10 ASCII s 122:3 Ashcroft 43:12 asked 7:3 9:2,4,5 15:18,24 19:7 35:2 69:4 88:21 97:25 109:4 111:10 113:20 116:13 120:23 asking 98:3
----------	---	--	--

Assaad 2:19 5:20 5:20 13:21 18:17 18:22 19:3,11,18 19:25 21:11,18,20 40:7 48:14 121:19 122:5 assess 53:2 assist 37:14 assistance 81:21 87:5 assisted 88:6 Association 70:24 71:13 72:5 assume 19:19,22 38:23 assumed 50:6 attached 63:24 64:7 70:23 96:17 attachment 70:6 attempted 53:12 attention 30:2,3,15 47:9 48:10,24 49:3 67:22 69:6 74:9 attorney 25:10 audio 113:9,18 Augustine 66:6,6,8 66:12 69:2 117:20 117:24 author 27:2,5,12 27:17,20,21,22 28:11,13 authors 12:9 27:7 27:19 71:22 72:14 111:23 automatically 101:20 available 17:9 19:5 19:13 20:14 Avenue 2:21 aware 41:24 49:6 49:10 67:18 111:19 112:5,7,22 114:18	back 16:23 17:19 18:14,15 22:14 24:7 43:4 47:11 49:15 51:14,19 52:15 54:23 55:6 60:8 70:10 75:19 76:24 78:17 79:4 79:8,12 80:3 92:15 98:23 120:20 background 93:7 bacteria 52:18,20 53:3,5,13,15 55:3 55:21 58:6,7,21 58:25 59:5,6,18 78:5 86:2,5 91:18 91:19 98:10,16,18 101:21,24 102:9 102:12 103:4,6,14 116:15 bacterial 53:8,10 56:13 58:15 86:6 86:9 98:11,14 Bair 1:5 4:21 50:13 52:4 55:12 58:14 59:25 60:21,25 61:21 62:9,15 63:9 68:13 78:8 91:24 103:25 106:8,14 107:11 107:15 113:21 114:13,15,17 118:4,25 119:13 ball 21:9,10 barrister 5:25 barristers 21:7 based 28:20,24 31:23 65:7,16 114:6,9 116:15 basic 108:18,20 basis 56:23 65:3 111:3 115:2 BASK 72:5 73:4,21 74:23 beep 113:5 beginning 4:7 22:16 43:5 47:12 77:2 92:13	begins 71:20 behalf 9:11 10:7,13 10:14 11:22 belief 90:6,6 believe 27:2 46:25 53:6 87:23 120:24 believed 76:10 Bench 4:12 22:22 benefit 23:21 86:22 86:25 87:5 benefits 86:13 bent 51:20 best 60:9 76:11 92:18 107:17 better 74:7 beyond 104:18 119:17,20 bicep 96:16,17 big 26:19 42:21 bit 22:6 70:4 77:15 93:18 bits 33:16 black 45:5 BLACKWELL 2:14 blanket 35:18 52:2 52:3 60:2,10,19 60:21,25 61:18,22 62:22 89:14,18 107:2 blankets 60:6 104:23 108:23 114:13 blocks 22:9 83:17 blown 83:6,8 blows 82:21 blue 45:9,9 body 40:16 46:17 61:13 Bone 26:25 101:8 105:7 116:3,11 book 30:21 bottom 26:5 30:15 43:6 69:7 70:22 84:15 121:8 bought 80:5 Boulevard 2:18 bound 16:24 21:25	Bradford 94:7 break 20:20 92:8 bring 79:15 Britain 116:11 British 70:24 71:13 72:5 73:11 116:6 116:9 124:4 broad 44:10 brochure 34:18 BSc 95:2 bubble 32:19,21 77:12 79:16 80:5 106:4 107:10,14 bubbles 33:2,3 35:11 105:22 bundle 30:8 38:15 BURKE 2:14 bury 10:22,25 business 20:15 butchers 24:4	 C calculating 106:18 calculations 109:11 call 6:12 20:3 67:20 94:5,9 113:11 called 50:7 53:6 70:6 100:10 calling 73:23 camera 32:22 74:21 77:18,20 79:16 80:5 Canada 2:11 Cannon 27:8 28:15 39:16,23 60:3,22 61:23 62:4 71:21 72:16 73:15,16 capable 58:6 91:3 captioning 121:7 card 77:23 Cardiff 70:25 carried 58:7 64:24 carry 25:12 38:4 102:9 case 23:25 27:22 48:3 66:19 125:1 cases 20:10 cause 102:22	 103:14 124:11,12 caused 34:11 108:8 causes 90:7 causing 43:10 ceiling 44:8,9 45:18 83:25 centimetres 40:15 41:5,9 certain 47:23 85:14 110:12 certainly 10:18 12:17 CERTIFICATE 3:9,10 123:1 124:1 certify 123:5 124:5 124:10 CF 117:13 chain 98:6 Chambers 2:7 4:13 change 19:24 50:21 90:14,19 92:8 106:18 changed 88:9,12 106:13 107:23 changes 62:25 63:4 103:24 106:21,24 107:5,7,10,14 114:5 123:7 channels 39:3 characterizations 112:23 characterize 86:12 characterized 8:8 check 54:16 56:22 checking 57:3 112:14 chest 45:12 51:21 choose 76:20 chosen 12:13 Christopher 64:12 64:14 65:13 circumstances 10:9 44:18 56:17 cite 43:11 cited 43:24 civil 4:17,18 13:2 claim 4:23 22:20,22
B					
b 103:4 Bachelor 95:2					

clarification 32:20 37:17 38:18 100:13 120:6	comments/sugge... 69:10,13	conclusions 111:13 conditions 47:25	consistently 12:7 consultant 24:24 conduct 6:5,11 8:12 29:14	94:16 95:15 96:25 98:12,19 99:2 100:20,23 102:2,6
clarify 46:14 49:22 61:3 110:5 125:5	commercial 4:17 86:14,20	commission 20:11 communications 12:8	conducted 7:11 29:9,18 84:11 conducting 6:23 8:7 15:14 20:9 31:6 32:3 42:3 103:22	102:14 105:9 106:5,11,12 107:19 108:3,24 108:25 109:23,24 111:14 114:2,8 117:2 119:6,7 120:25 125:7
clarifying 28:3	company 2:16 4:22 30:19 33:18 34:8 34:10 35:15 41:23	company 2:16 4:22 86:20 88:5 110:25	conductive 35:17 52:5	corrected 90:10 corrections 123:7
class 108:13	compare 74:6,10	confer 20:20 conference 22:12 113:6	confer 20:20 conference 22:12 113:6	correctly 51:3 52:24 82:23 84:22 85:18 86:17 104:13 110:16
classes 108:11	compared 97:20 108:24 120:8	comparison 67:11 80:15	confident 17:25 configuration 118:23	Costello 2:12 5:22 5:22 48:15
clear 10:23 11:4 24:15 55:10 76:13	competitor 118:4	configured 85:7 configuring 37:15	control 106:10,22 107:8,15	costs 21:23
clerk 20:6,21 21:9	compile 88:23	confines 22:4 confirm 8:18 52:19 104:7 105:12	convection 57:23 89:13,17 108:8	cotton 60:6
client 11:11	completed 8:9 95:16	conflict 16:12 17:23 87:25 88:14 88:19	Convention 4:16 conversant 20:9 conversation 91:12	counsel 5:11 6:23 12:9 13:5,13 30:22 116:13 124:10,11
client's 21:22	completion 78:13	conflicts 86:11 87:10,21	conversations 93:4 copied 12:8 66:4,9 copies 89:2	counsel's 21:9 count 101:20,21,23 101:25 102:4 105:20 106:2,25
clients 19:13	complied 58:11	conform 125:6 conforming 47:6	copy 93:10,11 96:6 copyright 49:4	counter 33:18 35:18 36:24 37:8 40:3 79:21
clinics 96:3	comply 10:23	confused 70:4 117:5,15	Corey 2:15 5:14 correct 6:16,19 23:18,19 24:18 27:13,17,18 28:16	counting 55:13 80:14
clipped 45:22	computer 42:19	connected 42:7 46:8	28:22,23 29:3 31:24,25 32:12 34:25 37:11 38:5	counts 116:22
close 20:15 52:10 80:11	conceded 9:12	connection 30:12 31:14 47:20 68:12 82:10 109:5 111:5	39:16 40:23 43:12 43:13,22 45:25 46:6,22 47:8 48:8	couple 19:4 21:2 26:19 29:25
closed 121:7	concentration 108:22	consent 10:12 11:14	50:11,14 52:25 54:20,21 55:15	course 10:5,11 17:15 19:9 22:18 92:19
co-operated 11:25	concern 52:23	conclude 50:20 85:20 104:6	56:3,24 60:14,20 61:8 63:19 65:10	court 1:2 3:10 4:11 4:12,19,24 5:8 7:8 7:19,20,23,23,25
Codes 125:4	concerns 41:16,21 41:22,25 43:8	concluded 16:25 43:15 102:7 122:10	76:19 77:7 78:23 80:7 83:13 84:3 84:25 85:3,4,19	8:2,10 12:4,10,19 12:20,22 13:12
coincidentally 68:15	69:25 92:3 110:19 111:10,20,21	concludes 120:15 concluding 36:13	86:18 89:11,19,23 92:22,23 93:3,5,9	14:21 15:11,25 16:18 22:21 26:9 96:7 121:17,21,24 124:1
colleagues 64:3 99:7,8	concerned 15:20 43:15 52:13 54:2 119:4	consider 16:24 18:16 58:2 86:19 86:24 87:4 108:15	consistent 96:23	
collect 42:16 78:5	concerns 41:16,21 41:22,25 43:8	consideration 99:22		
collected 54:5 55:11	69:25 92:3 110:19 111:10,20,21	considered 101:10 82:25 90:6		
College 95:6,10	concerned 15:20 43:15 52:13 54:2 119:4	consistent 96:23		
colonies 54:12	concerns 41:16,21 41:22,25 43:8			
colony-forming 55:4,8 56:15 57:15 59:21	concerns 41:16,21 41:22,25 43:8			
column 37:2 77:2 81:25	concerns 41:16,21 41:22,25 43:8			
combination 42:20	concerns 41:16,21 41:22,25 43:8			
come 8:22 18:14,15 28:19 33:13 45:8 60:10 113:2	concerns 41:16,21 41:22,25 43:8			
comes 15:12 17:24 45:11 61:17,18 83:3,18	concerns 41:16,21 41:22,25 43:8			
coming 31:5 70:17 83:11,25 113:5	concerns 41:16,21 41:22,25 43:8			
commencing 4:6	concerns 41:16,21 41:22,25 43:8			
comment 13:8 63:8 97:21	concerns 41:16,21 41:22,25 43:8			
comments 69:15,19 69:21 75:12	concerns 41:16,21 41:22,25 43:8			

Court-appointed	data 81:15	describe 28:20	disclosures 87:14	downwards 89:10
6:2	date 5:3 123:25	82:10 85:6	87:21	Dr 5:23 19:13
courts 11:23 12:4	125:2	describing 40:12	discuss 19:12	23:18 28:13,15
12:16	dated 63:20 67:23	design 33:5,6 77:3	discussed 33:7	30:16,25 39:23
Coventry 25:24	124:25	designed 42:11	57:21 65:8	60:2,22 61:23
93:24	Davies 1:24 5:9	designing 42:12	discussing 65:17	62:3 65:7,13 66:7
cover 30:20 62:22	124:4,24	Despite 12:11	discussion 40:15	66:11,12 68:9,17
covered 60:5	day 4:4 29:22 32:6	details 33:23	50:15 52:16 88:15	68:23 71:20,20,21
covers 45:13	32:9,11 65:4 77:5	detergent 90:25	91:13 116:14	76:7 87:8
CR2016-420 4:24	91:14 98:5 113:9	determining	discussions 42:4,6	draft 8:5 65:8,17
CR2016-520 22:22	deal 48:13 65:20	118:22	46:7 69:20 71:11	67:12,16,21 70:23
created 32:17 33:7	92:4 111:2	devastating 103:15	72:2 87:8,18	71:8 74:23 75:11
82:3 108:9	December 1:17 4:2	device 46:18,19	dispute 10:4	75:20 76:4,17
criteria 47:25	4:4 5:3 19:16	50:8,21 51:2,8,17	disrespect 23:23	80:23 82:8 83:23
critical 96:22	22:18 123:6 124:6	51:22,25 52:3,7	disrespectful 24:16	drafted 64:10
criticized 112:7	124:25	53:17 55:12 57:4	disrupt 34:17 43:9	drafts 80:12
cross 119:17,18	decide 18:11 55:18	60:13 62:11 78:5	85:15 104:23	drape 44:8,12,17
cross-exam 14:3	84:4	82:3,21 107:22	110:13	45:2,5,9,16 46:10
cross-examination	decided 65:24	118:8,9 119:2	disrupted 50:25	60:10,12,19 61:2
8:8,12 9:6,10,25	decision 15:5 67:2	devices 43:9,16	51:8 104:8	61:6,17,19 62:9
10:13,20 11:10	deemed 110:5	53:22 56:5 60:11	disrupting 43:16	83:3,6,18,25 84:5
13:7,22 16:8,15	Defendant's 11:8	104:9	distal 96:16	84:17 85:5 90:7
17:22 119:21	Defendants 5:15	diagram 46:13	distanced 87:19	drapes 62:23 83:11
cross-examine 6:13	9:12 12:3,12	differ 62:19	District 1:2,2 4:11	draping 60:6,18
6:14 9:20 10:2	13:25	difference 81:6,10	4:11,19,20,25 7:8	62:16 113:25
13:14 14:13,23	deferred 66:5	117:8,10	7:9,19 12:20,21	114:3,14,16,17
15:7	Define 44:9	different 35:9	14:21,21 16:18	118:7,12
cross-examining	degree 11:11 94:20	81:14 83:24 89:10	divider 64:5	draw 85:16 110:13
17:4,8	94:25 95:3,3,5	97:5 106:7 113:25	Division 4:12 22:22	drawing 44:22
cubic 59:21	deliberately 16:4	114:4 116:5	docs 49:2	drawn 108:9
cultured 55:4	delivered 35:25	differently 85:8	doctor 23:22 24:8	DULY 23:13
culturing 91:19	36:3,11	difficult 61:5	27:8 92:20 94:7	duty-bound 10:23
current 62:12 63:3	depending 21:12	difficulty 15:12	doctors 17:5 24:3,5	DVD 4:8 92:9,14
63:6 84:24 91:22	62:3	20:17	24:6 95:24	120:16,25
119:13	depends 24:12	digital 77:18	document 26:23	dwell 38:13
currently 93:20	depicted 46:18	direct 6:11 7:24 8:9	28:8 38:8 47:15	Dyer 2:5 6:3,4
95:23	61:18 76:11	13:14 14:2 16:12	47:19 48:17,21	dynamics 108:16
currents 57:23	depiction 44:25	16:15,20 17:11	63:15 70:6,11,13	108:19
108:8	DEPONENT 3:9	18:24,24 26:14	73:21 89:5	<hr/> E
curriculum 3:13	123:1	30:2,14 47:9	documents 3:12	
93:11 96:6	deposition 1:11 4:3	48:10,24 49:3	doing 25:17 34:12	e 3:4 6:22 9:19
curtain 83:11	4:8 5:7 48:22	67:22 69:6 74:9	42:18,21 72:23	14:12 15:13 16:3
customers 112:24	92:10,14 120:17	directed 8:4	91:4 104:3 105:24	17:2
CV 72:9 73:2 98:24	120:24 122:10	directly 66:9 82:22	122:4	e-mail 30:4 35:24
<hr/> D	123:6 125:2	86:15,20	doubled 59:5	63:15,23,24 64:8
d 3:4 6:10 9:9	depositions 8:22	disclose 87:9 88:16	doubt 16:14 20:5,8	67:23,25 68:4
13:22 15:8 97:12	12:6,17	disclosure 86:11	downward 50:25	69:7,17 70:21
	descendancy 24:11	87:10	51:7	71:9 77:25 87:18

93:4 e-mailed 77:24 e-mails 65:23 66:2 66:10,11 E14 2:11 earlier 23:24 75:6 97:25 98:10 easier 44:21 easiest 51:10 easily 84:21 East 94:3 EC4Y 2:8 edge 60:24 61:21 Edinburgh 95:7 effect 91:17 107:22 effectively 15:8 22:3 effort 30:19 eight 25:16 94:2 either 17:4,12 23:19 31:15,15 64:12 76:5 86:2 88:22 117:17 elbow 96:17 elbows 45:6 eliciting 7:7 14:19 16:17 employ 39:6 employed 40:17 46:4 employee 34:5 88:5 124:10,11 employees 110:21 110:22,24 111:6 117:16,17 enclosure 40:21 44:13 45:8,21,23 46:9 62:21 82:22 84:20 ended 88:2 engineering 108:12 108:13 England 4:6 111:24 English 5:25 ensure 15:16,21 ensured 78:14 entitled 4:20 48:18	environment 54:18 98:15 equality 15:16,21 equalized 78:18 equates 101:20 equipment 5:5 32:18,24 33:2,17 33:21 35:6,14,20 35:25 36:10 37:10 42:9 54:14 72:23 77:5 78:21 79:14 80:5 86:24 87:7 87:14,22,24 ERRATA 3:11 error 6:15 9:2,13 13:9,13 15:10 33:19 errors 12:22 13:6 125:7 especially 97:17 Esq 2:15,19,22 essentially 46:19 57:4 61:6 62:17 64:2 66:16 83:17 91:2 96:17 98:17 99:6 everyone's 22:4 evidence 4:10,14 4:17 7:12 13:3 14:25 16:13,14 17:23 20:11 48:5 99:20 exact 43:19,25 81:7 81:10 exactly 29:15 62:5 72:10 105:16 110:2 117:19 exaggerated 117:7 exaggerating 117:10 exam 14:2,4 95:11 examination 6:6,11 6:12 7:6,11,24,25 8:9 14:18 17:11 17:11 18:24 23:15 92:17 97:7 120:15 examination-in-c... 6:24 9:6 14:12	15:14 examinations 17:16 examine 13:13 examine-in-chief 9:20 EXAMINED 3:7,8 3:8 116:2 examiner 2:5 6:3,4 6:18,21 8:13 9:17 10:15,22 11:12,16 11:19 13:11,16,19 14:5,8,24 15:5,18 16:20 18:4,7,19 18:25 19:21 20:5 20:23 21:8,15,24 22:24 23:3,6,11 24:10 25:9 26:16 27:15,24 36:17,19 36:21,25 37:4,18 38:2,10,20 39:13 39:18,20 40:24 43:20 44:3,16 45:11,23 46:12,20 46:23 47:11 48:6 48:12 49:12 51:14 51:16 52:7,10 57:8 60:12 61:24 62:3 67:7,16 70:4 73:2,6,10,13,16 73:20 74:2,13 75:15 76:15,20 77:13 80:15,20 83:10,20 89:4,7 89:12,17,20,25 90:9,13,18 92:7 97:9,14 100:6,24 103:2,11,19 109:14,18,21,25 111:25 113:7,12 113:15 115:20 117:3 118:13 119:19,23 120:14 120:19 example 20:10 38:19 99:17 108:16 Exceeds 97:6	exception 9:8 123:7 exchange 66:15 exchanges 66:15 exclude 12:14 84:18 excuse 14:6 75:5 116:4 120:20 ExFlow 40:21 exhaust 40:16 exhibit 3:12,13 26:3,3,6,11 41:14 47:10 96:7,8 115:21,23 exhibits 121:18 existence 47:21 exists 32:17 expedite 121:19,19 122:7 expenses 30:20 experience 99:9 experiment 29:6,6 32:3,14,15 33:22 34:12 35:5,7 39:23 44:7 50:19 53:20 57:11 71:16 80:4 81:13 86:23 88:7,8 91:10 experimental 28:25 33:5,6 77:3 104:10 experiments 29:9 39:15 64:24 65:8 72:18,23 84:13 expert 108:16 explain 23:23 36:15 46:13 99:3 109:25 114:23 explained 23:24 66:19 explaining 20:7 explore 44:16 exposed 61:16,20 expressed 66:20 extend 41:4 extension 84:17 extensions 40:22 41:4,7,9 45:7 62:21,22 63:7	84:25 extent 13:24 14:16
			F	
			f 6:25 9:19 15:14 15:20 16:3 17:2 fabric 52:5 face 9:2,7 facilitated 42:8 fact 16:16 58:15 factors 101:14 facts 125:6 fair 14:14 15:3 fairly 9:12 38:8 66:21 false 70:16 familiar 82:14 94:11 98:6 108:18 110:21 fan 52:2 far 15:20 41:4 60:24 61:21 96:8 100:10 Federal 7:12 12:20 12:25 14:25 16:14 feel 66:23 Fellowship 93:22 felt 65:18,22 84:12 115:7 field 85:17 96:10 99:10 110:15 figure 81:9 figures 81:7 figuring 37:15 File 3:12 finally 95:10 financially 86:22 124:10 find 10:24 56:2 59:8 80:18 82:6 91:18 107:21 109:18 123:7 finding 108:4 finding/getting 58:11 findings 36:15 76:11 115:16 fine 80:18	

finished 95:3 122:8	82:20 85:12,22	GARCIA 38:12	7:16 8:24 9:11,24	32:8 34:15 42:13
first 7:14 17:17	92:5 101:16 104:8	Gauthier 68:23	10:9 11:5 15:9	65:7,18,24 66:2,4
26:14,19 27:18,19	104:23 107:2	gel 53:15	16:6 17:10 20:19	66:12,24 69:20
27:20,23 29:9	108:6,23	general 14:25	21:6 23:12,15	70:3 71:20 72:15
30:3,6,7 32:16	foregoing 123:5	17:23 29:17	24:14 25:13 26:13	73:3,17 84:10
33:13,15,15 35:5	124:5,7	101:18	26:18,21 27:25	87:9 88:15 110:9
35:7,13 36:13,16	foreign 19:25	generally 45:2	30:24 36:18,20,22	hand 39:8
39:5,23 40:6 41:7	forget 105:10	generated 78:10,20	37:2,7,21 38:6,25	hand-held 37:8
41:13 44:7 46:25	form 9:13 19:23	generator 77:12	39:21 40:8,25	HandiLaz 36:23
47:3 49:9 53:20	34:13 37:16,18	80:6 90:22	43:23 44:6,15,19	37:8 39:3
73:22,23 78:8	49:11 55:16 56:10	Genevieve 2:22	44:24 45:10,15	hands 18:11
79:18 80:2 88:22	57:6 58:18 59:19	5:17 11:21	46:2,24 47:13	hanging 46:10
91:10 94:6 103:23	75:14 84:8 86:13	gentlemen 110:22	48:9,16 49:14	happened 35:7
105:8 109:19	91:25 102:24	getting 20:2 42:8	51:24 52:6,14	49:23 65:4,21
120:23	103:17 116:25	48:21 97:18 113:9	55:17 56:16 57:12	76:13
firstly 99:12 101:15	formally 115:23	117:5	58:19 59:22 60:15	happening 69:20
fit 10:17	forward 19:19	give 17:18 55:24	62:7 67:8,19	111:23
fits 103:4	69:11 71:17	59:6 77:22	70:18 74:3,14	happens 56:20
five 90:12,15,16,18	found 52:22 108:22	given 7:8 14:20	75:18 76:23 77:14	99:25
92:15 94:23	foundation 26:12	16:13 17:24 38:15	77:17 80:17,21	happy 19:9 35:24
120:18	30:23 38:18,24	38:24 64:3 81:14	83:14,22 84:14	103:8
five-minutes 22:15	94:5 120:11	gives 55:22 60:9	89:6 90:16,20	head 83:18
Fleet 2:7	four 65:11	glycerol 78:20	92:6 97:6,13,15	Health 47:7,16
flier 34:14,15	frame 29:17 31:9	go 15:6 16:23 17:7	97:25 100:14	48:18 49:2
flip 28:4 30:2	31:14,15 46:4	17:19 19:12 22:6	101:19 102:24	healthcare 2:16
floor 40:15,22	FRCS 95:11	22:7 26:6 42:18	103:17 109:4	4:23 5:15 48:20
41:10 83:12,19	frequency 97:19	51:14 54:11 67:10	113:20 116:2	hearing 8:17,19
90:3 117:7	frequent 97:21	70:10 79:8 80:17	117:2,9 118:17	10:6 20:18,22
Florida 22:25	frequently 100:2	94:19,20,20,21	119:24 120:2,12	hearings 20:9,12
25:10	Friday 20:15	97:11 100:7	120:24 121:2,6,15	hearsay 67:6,7
flow 50:25 51:7	front 8:19 26:3	119:19	graduate 25:18	heat 82:2,7,9 84:19
flowed 78:11	43:4 83:17	goes 45:6,17 119:3	greater 97:22	92:3 106:11
fluid 108:16,19	full 8:15 23:6	going 19:19,20	117:13	heated 83:5,7
focus 39:11	109:20	20:25 21:3,13,23	ground 41:6 83:4	heating 48:18 50:8
focussing 13:4	fully 94:11	22:8 26:2 28:2	group 99:6	89:13
follow 16:25	fund 111:16	33:8 38:7,12 43:4	grow 117:11	held 39:7,10 45:17
follow-on 32:16	fundamental 14:7	48:13 49:15 52:15	grows 53:15	helium 77:11
Following 22:12	fundamentally	59:11 65:20 67:3	guess 60:2 64:5	105:22
follows 4:20 8:24	108:8	67:4,10 69:23	76:25 96:7 118:19	help 30:18 41:3
15:5 23:14	further 8:22 60:10	70:19 77:14 89:4	122:5	51:5 70:5
Fontaine 4:13 8:19	104:7 112:4	90:16 92:10 96:5	guessing 49:9	helpful 8:14 11:3
22:13	115:19 119:24	100:6,9 115:20	guiding 96:4	helps 73:2
FONTAINE'S 3:5	120:12 124:10	119:23 120:18	guys 30:17	high 4:12,24 7:20
forced 1:5 4:21	future 104:10	122:6		7:23 8:10 12:10
41:17 43:8 50:20		good 23:16 35:10	H	12:19,22 15:25
110:10		74:5 99:14	h 7:4 14:9,16 16:12	22:21 99:12,19
forced-air 34:16		Gordon 2:15 3:7,8	Hague 4:16	119:4,14
43:16 46:14 82:10		5:14,14 6:7,16	Hamer 27:9 28:13	higher 51:20,21

<p>93:23 97:4 highlighted 33:19 34:9,11 highly 115:10 Hilton 4:5 5:8 hip 73:11,19 97:17 historical 24:2 hitchhike 102:13 102:15 HODGES 2:17 hold 39:8 holding 40:2 hole 61:17,19 Holl-Allen 2:8 5:24 5:24 6:18,20 8:14 8:16,18 9:22 10:16 11:3,13,17 16:6 17:25 18:5 19:7,17 21:16,19 39:19 51:15 hoping 71:16 hospital 23:9 30:17 31:6 32:18 36:2 46:4 47:22,24,25 54:14 56:4 57:2 58:22 60:17 63:8 64:25 69:17 84:10 91:22 105:14 116:23 118:6 119:5,13 120:4 hospitals 48:7 118:24 119:15 120:8 host 98:20 hot 83:7 HotDog 33:18 34:6 34:8,10,24 35:2 35:15,17 37:10,14 41:23 42:7,7 50:13 52:5 68:13 72:22 78:8,22 79:8 86:19,25 88:5 103:25 106:10,16 107:3 107:12 117:20,21 117:25 118:3 hotel 30:20 hours 21:3</p> <hr/> <p style="text-align: center;">I</p> <p>I(d) 13:7 idea 116:10 ideas 108:19 identical 19:23 76:21 80:12 identification 55:21 identified 9:9 16:3 72:14 identifies 71:20 identify 53:9 113:13 ignored 15:9 images 74:25 77:21 imagine 16:5 immediately 22:19 impact 116:10</p>	<p>Houston 2:18 Howorth 40:21 45:8 46:8 62:21 82:22 HTM2025 47:7,17 47:20 49:7,16 Huddersfield 94:7 huge 55:24 59:6,10 59:15,17 Hugger 1:5 4:21 50:13 52:4 55:12 58:15 60:2,21,25 61:22 62:9,15 63:9 68:13 78:8 91:24 103:25 106:8,14 107:11 107:15 113:21 114:13,15,17 118:4,25 119:13 human 29:2,6,7,10 29:11,12,13,18,19 31:13,16,17 35:13 36:14 39:19 51:18 59:25 73:24 100:10,25 101:2,3 103:23 111:11 115:4 hung 61:6 hypothesis 58:4,20</p> <hr/> <p style="text-align: center;">I</p> <p>I(d) 13:7 idea 116:10 ideas 108:19 identical 19:23 76:21 80:12 identification 55:21 identified 9:9 16:3 72:14 identifies 71:20 identify 53:9 113:13 ignored 15:9 images 74:25 77:21 imagine 16:5 immediately 22:19 impact 116:10</p>	<p>implemented 63:4 implying 41:6 important 21:12 84:12,19 88:13 99:16,18 102:18 107:20,25 119:2 in-chief 6:12 10:11 inappropriate 13:18 include 55:18 84:4 included 16:4 includes 69:9 inclusion 74:23 87:17 inconsistencies 16:20 inconsistency 9:13 9:18 16:21 inconsistent 12:23 12:25 incorporated 4:23 8:5 incorporating 75:12 incorrectly 22:21 increase 50:22 52:21 59:17 102:10 108:22 116:21 increased 41:18 50:23 53:9 58:5 58:21 85:22 101:15,16,24 102:4 108:6 120:5 120:7 increases 85:13 110:11 independent 72:2 independently 65:25 87:20 indicate 58:13 indicated 7:23 8:3 49:4 59:17 indicates 57:23 83:23 indication 72:17,21 indirectly 86:15,21 individual 26:6</p>	<p>31:2 infection 41:19 43:10 50:24 85:13 85:22,24 86:5,6 96:22 97:4,18 98:2,7,11,14 102:11,22 103:15 110:11 119:14 infections 86:8,9 119:9 information 55:19 84:5 initial 34:12 initially 66:5,24 INN 2:7 input 88:10 inside 46:10 96:19 institute 63:6 124:4 instruct 114:14 118:14 119:3 instruction 114:9 instructions 10:7 10:12 11:14 37:23 114:13 instructor 95:18 insulate 63:9 insulated 82:4 insulation 62:23 intended 9:3 intent 8:3 intentionally 16:7 17:2 interchangeably 103:7 interest 87:22,25 88:14,20 interested 30:19 34:11 124:12 interests 25:25 38:11 67:9 interfere 41:17 89:20 interfered 12:2,5 Internal 36:19 interpret 10:24 interpretation 6:19 17:3 18:10,22,25 19:19,24</p>	<p>interruption 112:16 introduce 5:12 25:7,11 93:17 introduced 117:6 introduction 41:15 investigate 112:3 investigations 77:4 investigators 77:6 invited 30:16 involve 95:21,24 involved 28:15 32:7 112:17 117:17 124:10 involvement 87:5 87:10 88:17 involves 95:22 involving 28:21,25 29:10,11 33:17 issue 20:4 92:4 96:22 issues 6:8</p> <hr/> <p style="text-align: center;">J</p> <p>j 6:10 7:10 16:12 27:4 JNE/FLN 1:7 5:2 Job 1:25 John 1:1,12 2:1 3:1 3:6 4:1,3 5:1 6:1 7:1 8:1 9:1 10:1 11:1 12:1 13:1 14:1 15:1 16:1 17:1 18:1 19:1 20:1 21:1 22:1 23:1,5,8,13 24:1 25:1 26:1 27:1 28:1 29:1 30:1 31:1 32:1 33:1 34:1 35:1 36:1 37:1 38:1 39:1 40:1 41:1 42:1 43:1 44:1 45:1 46:1 47:1 48:1 49:1 50:1 51:1 52:1 53:1 54:1 55:1 56:1 57:1 58:1 59:1 60:1</p>
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61:1 62:1 63:1 64:1 65:1 66:1 67:1 68:1 69:1 70:1 71:1 72:1 73:1 74:1 75:1 76:1 77:1 78:1 79:1 80:1 81:1 82:1 83:1 84:1 85:1 86:1 87:1 88:1 89:1 90:1 91:1 92:1 93:1 94:1 95:1 96:1 97:1 98:1 99:1 100:1 101:1 102:1 103:1 104:1 105:1 106:1 107:1 108:1 109:1 110:1 111:1 112:1 113:1 114:1 115:1 116:1 117:1 118:1 119:1 120:1 121:1 122:1 123:5 123:24 124:5 joining 112:11 113:6 joint 26:25 101:9 105:7 116:4,11 119:10 Jonathan 2:8 5:24 journal 26:25 28:10 42:21 99:13 101:8 105:4,6,7 105:10 116:3,4,11 journals 98:25 115:11 judge 21:21 38:21 93:15,17 99:3 judgment 115:2 judicial 20:2 July 24:25 30:18 31:9,14,16,19,20 31:23 32:3 33:11 64:25 93:21 jumbled 64:5 junior 27:8,18 70:2 95:24 jurisdiction 10:20 12:17 Jurisdictions 4:15	jury 44:17 57:2 93:16,17 99:4 114:23 Justice 4:12,24 15:25 22:21 <hr/> K Katie 2:12 5:22 keen 22:2 keep 79:7,7 89:16 107:17 keeping 77:15 89:12 keeps 113:5 KENNEDY 2:17 kilobytes 70:12 kilobytes]I 70:7 kind 37:22 54:22 100:16 leg 61:17 legal 3:5 22:5 Legg 1:1,12 2:1 3:1 3:6,13 4:1,3,9 5:1 5:23,25 6:1 7:1 8:1,21 9:1 10:1,7 10:8,13 11:1 12:1 13:1 14:1 15:1 16:1 17:1 18:1,14 19:1,5,13 20:1 21:1 22:1 23:1,3,5 23:8,13,17,18 24:1,16 25:1 26:1 26:3,6 27:1,4 28:1 29:1 30:1,16,25 31:1 32:1 33:1 34:1 35:1 36:1 37:1 38:1 39:1 40:1 41:1 42:1 43:1 44:1 45:1 46:1 47:1 48:1 49:1 50:1 51:1 52:1 53:1 54:1 55:1 56:1 57:1 58:1 59:1 60:1 61:1 62:1 63:1 64:1 65:1 66:1 67:1 68:1 69:1 70:1,5 71:1 72:1 73:1,16 74:1 75:1	76:1 77:1 78:1 79:1 80:1 81:1 82:1 83:1 84:1 85:1 86:1 87:1 88:1 89:1,8 90:1 91:1 92:1,10,15 92:18 93:1,19 94:1 95:1 96:1 97:1 98:1 99:1 100:1 101:1,4 102:1 103:1 104:1 105:1 106:1 107:1 108:1 109:1 110:1 111:1 112:1 113:1 114:1 115:1 116:1 117:1 118:1 119:1 120:1,17 121:1 122:1 123:5,24 124:5 Legg's 69:9 lengthy 48:17 let's 14:6 19:22 25:12 47:2 90:18 92:7 letters 7:18 level 53:10 54:4,16 55:7 56:13,13,21 59:12,15 93:23 108:9 levels 47:23 78:17 Liability 1:6 4:21 libraries 42:21 library 42:19,20 lift 76:16 light 33:3 79:16 Likewise 106:24 limb 45:14 61:20 limitation 8:3 limited 2:10 7:24 9:4 14:12 line 22:25 41:14 43:6 45:5 47:5 48:25 82:19 112:12,14 125:8 125:10,12,14,16 125:18,20,22 link 113:6 listed 123:7	literature 96:10 litigation 1:6 4:22 13:25 93:2 112:19 little 64:4 77:15 82:2 93:18 117:15 LLB(Hons) 124:4 Llewellyn 21:5,7 load 53:8 58:16 loaned 35:14,16 86:25 London 2:8,11 long 24:22 29:13,20 54:9 98:5 longer 69:18 look 38:7 44:21 46:17 51:10 64:6 69:11 74:4,8 75:4 76:14 109:13 looked 34:23 35:8 83:4 111:20 114:19 looking 36:14 38:19 59:4 80:22 95:25 114:25 looks 42:14 43:11 lot 17:19 low 53:8 109:13 119:4 lower 51:2,8,22 <hr/> M machine 32:19,19 32:21,21 33:18 35:16 78:19 79:8 79:17 106:4,18,25 107:11,14 124:6 maintaining 97:10 majority 94:21 100:2 makers 46:8 72:22 making 18:19 114:25 managed 66:17 mannequin 29:2,6 29:8,11,14,21 31:13,16,18,21 32:4 39:20 46:18 51:19 59:23 73:25
---	---	---	---

78:4,7 79:6 80:4 100:25 104:21 105:18 108:5,21 110:8 111:11 115:4 manner 28:7 57:5 manual 37:22 manufacture 117:21 manuscript 63:25 64:7,10,22 65:16 65:17,19,20,23,25 69:9,15 Manuscript_Leg... 70:7 March 4:16 MARIE 124:4,24 mark 26:2,7 31:2 33:23 63:25 64:12 76:6 96:7 100:6 marketing 34:13 34:18 Master 3:5 4:13,13 8:19 10:21 16:23 17:20,21 20:3,8 20:13 21:17,18 22:13 Master's 20:6,21 21:13 material 48:21 63:18 materials 100:11 114:13 matter 4:9,15,18 10:3,20,25 20:7 matters 4:9,18 maximum 22:2 McGovern 68:18 MDL 1:7 4:25 5:19 MDU 2:10 mean 17:20 59:10 61:3 86:4 87:15 meaningful 12:16 17:14 means 18:10 44:18 99:5 meant 121:23 measure 53:5,7,12	62:6 67:13 85:24 85:25 101:13 105:17 measured 38:3 78:16 101:14 105:19,20,20 107:2 measurement 38:4 107:5 measurements 49:17 103:22,24 104:4 105:24 106:7,14,15 107:18 measuring 51:23 52:7 106:19,22 medical 25:18 42:21 68:14,16 93:18 94:17,19,21 94:22,22,24 95:3 96:10 113:21 meet 47:23 48:7 57:14 64:14 meeting 31:2 68:16 70:25 72:3,7,8,10 72:13 73:4,19 meetings 68:14 member 39:17 95:9 124:4 Memorandum 47:7,16 48:19 49:3 MESHBESHER 2:21 met 33:10 47:24,25 64:16 68:9,18,21 69:2 92:21,24 110:23 116:24 metal 45:21 meter 41:6 59:21 83:11 method 58:9,10,21 58:22 62:16 methods 35:9 metre 40:22 microbes 102:22 103:2,6,14 microbiologist 53:5	54:8,11 56:2,8,18 57:16 59:8 microbiologists 53:10 microbiology 54:20 mid-to 61:20 middle 40:25 47:4 81:25 109:19 Mike 68:5,7 mind 23:19 mine 45:9 76:3 Minneapolis 2:15 2:22 Minnesota 1:2 4:11 4:20,25 7:9 12:21 14:22 minute 93:14,16 minutes 49:18 50:5 50:8,10 90:12,15 90:17,19 misleading 107:24 misplacement 13:21 misspoke 67:21 Misstates 57:7 mister 23:22,25 24:5,7 92:19 MN 2:15,22 mobilized 57:22 58:14 moist 98:15 moment 26:9 97:9 moments 18:15 months 29:16,25 93:24,24 Montrose 2:18 mounted 39:8,10 mouth 34:10 move 19:4 46:12 67:5 71:16 116:14 119:3 moving 21:9,10 26:2 55:13 91:22 107:2 MRCS 95:9 <hr/> N N 3:4	Nachtsheim 64:13 64:15 65:13 69:2 71:21 76:7 name 6:4 27:17 33:24 36:5 43:21 44:4 93:19 123:24 125:1,3 named 27:19,20 31:2 73:7 names 23:7 68:3 narrow 44:10 nature 50:19 66:14 necessarily 101:24 neck 46:20 need 113:15 120:22 121:10 needed 33:16 104:11 needs 98:15 negative 91:9 neutral-buoyancy 77:11 neutrally-buoyant 105:22 never 64:16 65:19 66:18 71:24 New 25:24 93:24 NHS 119:5,8 120:9 No-one 25:12 noise 113:5 normal 66:22 78:18 normally 15:21,23 15:24 121:16 north 111:24,24 Northern 101:18 note 11:5 43:21 44:4 noted 13:6 notes 100:15 notwithstanding 8:9 November 5:5 8:20 10:4 22:17 number 4:23,25 17:6,8 22:20,22 38:2 50:22 52:21 55:24 58:24 65:23	68:3 80:8 100:3 101:14 102:22 103:14 numbered 26:5,22 123:5 124:5 numbers 26:6 47:14 80:8,12,22 81:11,12 <hr/> O object 8:7 14:3 26:11 37:16,18 49:11 55:16 56:10 57:6 58:18 59:19 75:14 84:8 102:24 103:17 116:25 119:16 objection 7:19 10:9 30:23 38:23 97:6 97:10 120:11 objections 17:12 38:18 observational 114:20,24 115:5 obtain 4:10 25:21 obvious 86:4 obviously 20:24 32:25 48:17 occur 87:23 88:12 October 67:23 68:18 71:9,12 off-line 113:10 offer 96:6 115:23 offered 111:16 okay 14:5 15:2 18:4 26:20 27:14 28:6 29:5 30:9,11,14 32:2,10 34:5,20 38:16 40:5 41:12 41:24 42:3 45:10 50:12,15 52:6 55:3 62:8 65:5 71:6,19 73:12 75:19 78:3,19 80:20 83:20 93:19 95:5 96:21 97:14 100:12 103:11 105:17 108:15
---	---	--	--	---

113:18 114:20 116:13,21,24 117:15 122:8 on-call 95:25 once 8:8 53:15 ones 26:19 75:21 ongoing 113:21 open 112:14 opening 60:25 61:10,23 opens 17:6 operate 56:12 operated 45:14 77:18 operating 39:14 40:14 45:24 56:19 58:10,12 102:19 105:11 operation 39:12 54:10 84:11 operations 24:3 84:13 97:20 operative 89:22 opinion 7:2 15:18 16:22 opportunity 8:15 14:23 opposed 21:2 68:14 options 17:9 order 3:5 4:10 6:5 6:9,10,22 7:15 8:5 8:10 9:2,3,7,14,19 9:25 10:19,22 11:6,9 12:22 13:5 13:12,24 15:8,10 16:4,7,21 17:3,13 17:20 18:9,10,18 18:19,20 19:2 21:25 97:12 120:22 orders 19:22 ordinary 55:9 original 81:15 originally 7:18 orthopedic 24:21 24:22,25 25:21 56:12,19 57:3 93:20,25 95:19	96:23 97:2,3 102:5,23 118:6 orthopedic-surge... 103:16 orthopedics 25:17 93:7 95:12,14 96:19 99:9 ought 20:17 outcome 107:24 124:12 outlier 120:9 outside 78:16 111:6 119:17 overrides 14:11 <hr/> P p 81:14 p-value 109:10,15 110:2 pack 63:17 page 26:6,15 30:3 36:17,19,20 37:3 38:8 40:5,6,9,19 41:7,13,14 43:4 45:2 47:3,4,4 48:24 49:4 50:17 50:18 52:15 63:14 67:23 70:5,10,21 71:4,19,20 72:25 74:6,8,11,11 75:9 75:9,9,19,20,21 75:21,22 76:24 80:9,18,24 81:24 84:15 85:10,11 97:11 100:11 104:22 109:20 123:7 125:8,10,12 125:14,16,18,20 125:22 pages 26:4,22 47:10,15 48:11 64:6,10,22 65:6,9 65:11 71:5 75:4 80:18 123:5 124:6 paper 26:24 28:9 28:16,18,20,24 29:7,8 32:16 38:2 43:12,14,19,20	44:2,4 49:15 50:16 57:21,22 65:6,6,11 66:18 66:25 67:13 76:8 76:24 80:9 81:23 81:24 82:8 87:13 87:17,20 88:5,19 88:22,23 96:16 99:11 104:6,17,19 107:25 112:8 119:5,8 117:22 119:5,8 123:7 125:8,10,12 125:14,16,18,20 125:22 parties 7:21 8:4 16:10 121:14	124:11,11 partly 117:6 party 6:25 9:20 10:2 13:16,24 86:14,20 party's 7:3 15:19 15:23 passed 116:24 patient 39:17 45:14 45:17 82:5 84:2,6 102:23 103:16 104:9,23 patient's 45:12 83:18 patients 93:5 95:25 96:3 97:3 113:25 pattern 78:11 peculiar 16:9 peer 99:4,6 peer-review 98:25 99:16,22 105:3 115:11 peer-reviewed 101:4 peers 99:7 pending 4:19 people 63:8 79:9 92:2 94:19 perfectly 20:13 91:3 perform 33:8,16,21 84:12 performed 24:3 84:13 performing 60:17 period 25:14 29:20 54:6 57:20 95:2 periodically 56:22 permit 6:10 10:2 10:19 11:10 permitted 7:11 8:11 9:4,7 97:7 person 25:7 34:3,5 95:23 personally 118:13 118:15 petitioning 13:24 phone 35:24	113:14 photocopy 46:17 74:5 photos 74:6,10,11 75:20,24 76:9,10 76:12,17 77:19 phrase 82:7,9 physician 24:18,20 physics 108:13 pick 58:25 59:12 picked 59:13 79:11 picking 58:23 picture 34:16 51:11 60:8 61:4 88:11 pictures 33:3 74:16 74:18 76:25 77:25 pieces 35:20 37:9 78:21 place 5:7 7:14 63:3 84:18 placed 53:25 54:2 Plaintiff's 6:23 Plaintiffs 2:19,23 4:22 5:18,21 7:20 8:2,7,11 10:5,14 10:15 11:22,24 12:11,14,21 13:8 13:13,15 14:2,22 15:13 17:4 26:11 92:25 plate 53:22 54:12 57:4 58:9 59:16 117:11 plates 53:14,17 54:6,19 55:5 58:25 91:9 play 32:13,14 played 93:15 playing 39:25 please 5:11,13 point 18:2 32:15 35:10 36:7,10 38:17 41:24 50:5 50:6,9 51:18 pointed 17:21
--	---	---	---	---

points 14:25 poor 55:21 portability 38:11 posing 41:18 position 8:6,14 10:8,18 12:21 13:8 14:8,14 16:9 16:19 20:16 positions 22:5 positive 55:24 59:7 possibility 18:13 58:8 121:22 possibly 20:22 post-doctoral 94:10,12 postal 36:3 poster 72:20 potential 13:6 33:19,19 111:6 116:14 potentially 41:18 43:10 58:5 82:21 85:16 89:21 93:15 97:23 98:20 103:15 110:14 power 18:9 PowerPoint 70:14 practice 62:12 66:23 96:24 113:22 114:6 practitioners 8:21 9:15 precisely 14:15 44:18 70:19 precluded 17:4,7 predominantly 25:23 prefer 19:8 preliminary 11:23 premises 48:20 preparation 64:19 present 2:25 32:9 39:22 55:22,24 58:25 presentation 72:21 73:3,22 74:24 presented 71:22,24 71:25 72:11 99:20	presenting 71:13 71:17 presumably 21:8 presume 69:16 79:11 105:14 pretty 79:23 prevent 18:13 prevention 96:22 previous 73:13 79:2 previously 90:2 91:15 primary 27:2,5,12 27:17,20,22 28:11 principle 108:4 prior 25:2,17 30:4 31:16 33:10 37:12 42:3 48:21 63:17 68:4,7,11,18 71:12 73:8 82:8 82:14 93:22,25 94:4 112:19 probably 21:4 51:10 60:9 75:5 79:25 89:6 113:10 probe 32:22 33:17 35:17 79:18,19 problem 26:16 33:20 92:5 procedure 13:2 17:23 20:14 procedures 13:19 60:17 proceed 17:10,12 18:12,12 67:17 proceeding 4:18 7:23 10:10 proceedings 4:14 5:19 12:13,19 13:10 123:6 process 11:25 12:15 20:2 21:23 30:12 99:16 112:18 produced 50:21 production 84:19 120:21,22 Products 1:5 4:21	professional 23:7,9 program 94:13 prohibition 9:24 prominent 101:10 proper 23:17 15:18,24 properly 7:2 9:5 11:14 prove 116:20 provide 16:13,15 35:25 88:25 provided 12:2 35:21 37:10,22 93:10 provides 7:4,10 provision 8:5 9:10 11:9 15:22 provisional 10:18 provisions 8:10 11:2 PS23 78:19 79:7 publication 55:19 67:17 73:23 96:14 100:16 101:11 115:14 publications 96:13 publish 116:8 published 26:24 28:10 31:22 42:15 53:4 65:7,11 67:14 96:9,15,16 98:24 99:13 proceed 17:10,12 18:12,12 67:17 proceeding 4:18 7:23 10:10 proceedings 4:14 5:19 12:13,19 13:10 123:6 process 11:25 12:15 20:2 21:23 30:12 99:16 112:18 produced 50:21 production 84:19 120:21,22 Products 1:5 4:21	Q qualified 24:5,24 qualifying 94:6 quality 99:14 quarters 37:3 Quay 4:5 Queen's 4:12 22:21 queried 7:25 question 17:15 19:8,18 28:3 30:25 35:6 44:11 68:17 102:25 103:18 119:25 122:5 questioned 119:20 questioning 7:5 9:11 10:11 14:17 100:14 questions 7:2 8:25 9:3,5 10:10 15:17 17:6 18:23,24 19:4,11 75:2 98:2 98:4 101:19 109:4 111:10 113:20 120:13 quite 21:24 22:5	84:22 85:18 86:17 104:13 110:16 121:25 122:2 123:5 read-in 22:16 reader 88:4 reading 99:17 really 54:7,7 55:20 55:22 64:20,20 reason 11:6 21:11 29:4 43:15 91:12 116:16 125:4,8,10 125:12,14,16,18 125:20,22 recall 18:5 29:15 31:2,5 33:24 35:23 37:24 39:2 43:14,18,25 53:16 53:24 54:7,9,24 54:25 55:3 60:24 66:14,24 67:25 72:9 74:19 75:2 78:2,14 79:10 82:12 87:12 88:18 88:18 90:24 91:2 91:5,11,16 101:19 105:15 109:10,12 113:22 receive 96:2 received 65:17 86:14,14 114:10 receiving 67:25 68:4 113:18 Recess 22:11 92:12 recognise 61:4 recollection 9:23 71:8,18 recommended 55:6 reconciled 16:22 record 14:10 19:3,9 19:12,13 22:6,8 22:15 25:12 26:8 26:10 38:21 92:11 92:15 115:25 120:18,21,23 124:7 125:5 recorded 124:6 recording 5:5 7:7
--	---	---	---	---

14:19 16:17 22:17 92:11 122:9 reduce 102:19 Reed 68:5,7,9,10 refer 23:17,25 26:5 29:5,7,8 40:20 47:17 92:18 100:21 reference 9:10 36:23 40:13 42:21 47:3 65:12 117:16 references 42:14 42:16 43:2 88:21 88:22 referred 37:9 75:6 100:14 referring 23:22 24:16 41:20 60:8 71:9 81:6 86:9 100:22 refers 27:4 69:14 69:22 73:23 75:10 reflect 80:9 refused 100:3 regarding 106:16 region 94:2,8 regular 111:3 related 86:15,21 relates 17:15 relating 9:11 relation 46:15 64:23 relationship 120:4 relative 119:14 124:10,11 reluctant 113:12 remember 36:6 42:24 72:10 79:17 91:20 98:2,3,4 105:13 Remind 47:14 50:17 100:24 removed 11:15 38:10 renew 30:23 38:23 rep 79:11 repeat 23:3 repeated 12:11	replacement 97:18 replacements 119:10 replicate 98:16 replied 66:5 report 47:5 54:22 99:15 113:8 119:9 121:17 Reported 1:24 Reporter 3:10 5:8 26:9 32:20 37:17 96:7 120:6 121:21 121:24 124:1 Reporters 124:4 Reporting 5:10 represent 5:15,18 5:21 representation 74:7 representative 33:22,25 35:3,22 36:5 42:8 represented 7:20 8:20 10:6 representing 5:13 5:25 93:5 represents 92:25 requested 12:7 requests 12:11 require 52:18 required 48:5 98:10 104:7 119:8 requirements 47:7 98:13 research 30:18 31:6 42:16,19 69:12 88:23 94:10 99:11 111:17 114:6 116:16 researchers 111:19 residency 94:4 resident 25:5,15 resistance 12:2 resolve 16:20 20:4 resolved 16:23 respect 9:14 13:7 23:25 68:17 92:20 110:19	respected 115:11 respond 8:15 response 66:22 67:6 responsibilities 96:2 responsible 118:7 rest 45:13 restrict 6:22 16:8 restricted 6:25 11:6 15:17 restricting 11:9 15:13 restriction 8:25 9:25 14:11 17:22 result 59:2,7 63:11 102:10 resulted 107:23 results 50:24 51:7 58:11 84:5 91:9 returned 78:15 revert 24:7 review 64:3 99:6,11 reviewed 99:4 revised 69:8 ridiculous 9:19 right 25:25 31:10 32:11 37:2 39:18 45:11 47:11 49:15 49:23 57:17,24 61:15 68:17 86:2 86:5 89:8,22 93:8 95:13 96:5,8 98:23 100:4 105:16 108:21 109:21 114:7 115:22 right-hand 40:11 40:19 41:2 rightly 53:16 rise 83:7 89:21 90:8 rising 89:14,17 90:3 risk 41:18 43:10 50:23 85:13,22 97:4 102:10 110:11 risks 98:2	Robert 68:23,23 Rocket 78:19 79:7 rogatory 7:18 role 32:13,13,18 39:25 64:18 118:18 room 5:11 39:14 56:19 58:11,12 102:19 rooms 105:11 rotation 93:25 Rotherham 23:9 23:10 93:21 round 17:17 rounds 95:25 route 67:17 routine 56:23 57:16 58:10 routinely 57:2 116:23 row 74:10,10 Royal 95:6,10 rule 17:3 18:8 rules 7:12 12:23,25 13:3 14:25 16:14 ruling 18:8 21:13 21:13 running 88:6	s s 111:22 S4 4:6 safe 54:18 sample 55:11 sampler 53:6 samples 54:5 satisfied 59:16,20 satisfy 48:2 saw 30:7 34:21 116:22 saying 18:18,23 29:4 89:13 112:3 117:16 says 5:5 11:5 14:16 30:15 38:2 48:25 49:2 69:7 70:14 70:22 scenarios 106:7	seen 5:4 30:4,11 34:14 38:14 48:20 63:15,21 selected 74:22 75:24 76:6,9,10 selection 76:17 self-evident 11:7 sending 69:8 70:15 senior 3:5 4:13 8:19 16:23 17:19 17:21 20:6,8,13 20:21 21:16,18 22:13 27:21 28:13 99:7,8
---	---	--	---	---	---

sense 9:23	side-by-side 67:10	solely 13:11	56:14,20,21 57:14	31:17,18,21,22
sensible 20:24 21:4 90:13	sides 7:21	solicitor 5:23	58:22 60:18 99:13	32:4 33:15,16
sensitive 55:23	sign 23:23,25 24:10 92:20 121:25 122:2	somebody 39:8 118:15	99:19	35:13,14 36:13,14
sent 34:14 53:17 54:19 67:12 79:3 112:22	Signed 123:23 124:23	somewhat 119:20	standards 58:12 116:24	36:16 39:6 40:6 41:13 42:3,11,12
sentence 51:6	significance 110:3	sorry 22:7,9 36:18 69:5 70:15,16 72:4 74:2,8 75:8	standing 40:2	42:15 44:22 46:25
separate 105:23	significance-of 110:4	77:13 83:16,16 85:4 89:15 97:15	stands 120:4	47:3,17,20 49:7
September 63:20	significant 52:21 62:24 97:19 109:2	110:5 112:16	start 47:2 76:4	52:15,22 59:23,25
sequentially 26:4	significantly 85:15 110:12	sort 28:19 45:19 81:25 90:2	started 82:17	65:5 74:11 75:22
SERJEANTS 2:7	similar 62:23 73:21 76:12,21 85:9 111:23 114:3	sought 7:18 70:2	starting 5:13 78:13 104:22	78:3,4,7 79:2,7,18 79:24 80:2 84:16
service 36:4	simple 37:24	sound 22:9	starts 26:15	85:6,10,12,21,25
SERVICES 2:10	simply 76:16	source 33:3 79:16	state 5:12 50:18	86:12 87:3,3,7
set 7:13 8:14 20:4 35:5 39:2 43:21 44:4 48:7 77:11 78:10,24,25 90:21 90:23 114:15 118:11	single 60:18 62:9 77:5	South 2:14 94:2	statement 11:23 88:20	88:3 91:14 100:10 100:15 101:5,13
set-up 32:17 33:6,9 40:18 44:7 46:3,9 83:3 84:24 85:14 88:8 89:24 101:17 104:10 105:15 110:12 114:3	sir 5:13 6:20 8:18 9:9,16,22 10:16 11:4,5 14:15 24:13 25:7	speak 87:18	states 1:2 4:10,19 12:25 14:21 16:18	103:23 104:16,21 104:24 105:8,18
set-ups 83:24	site 39:11 50:24 51:2,9 52:8,22 54:3 55:14 57:22	speakerphone 25:10	statistical 109:5	106:10 108:5,21
sets 47:23	single 76:16	speaking 13:18	statistician 81:21	109:6 110:9,10,23
setting 88:6 118:7	sir 5:13 6:20 8:18 9:9,16,22 10:16 11:4,5 14:15 24:13 25:7	special 20:3 21:12	statistics 81:16,17 81:18,23	111:11,12 114:21 114:24 115:4,4 117:7
seven 97:11	site 39:11 50:24 51:2,9 52:8,22 54:3 55:14 57:22	Specialised 48:19	style 113:25	
Seventh 2:14	sit 5:13 6:20 8:18 9:9,16,22 10:16 11:4,5 14:15 24:13 25:7	specialist 93:23	sub-specialty 95:13	
shared 77:22	situation 10:17 104:9	speciality 96:18	subject 7:22 21:25 28:21 29:2 86:15 86:21	
SHEET 3:11	situation 10:17 104:9	specialty 96:20	submitted 16:6 70:24 99:21 100:16 115:10	
Sheffield 4:5,5 5:8 25:23 30:17 31:6 64:25	situation 10:17 104:9	specific 48:6 55:23	subparagraph 6:22 6:25 7:4	
shorthand 28:19 124:6	situation 10:17 104:9	specifically 13:4 18:2 32:23 43:18 57:9 83:2 95:12	subparagraphs 7:15 17:2	
show 45:2 85:12,21 85:23 110:10	situation 10:17 104:9	SPENCE 2:21	subsequent 17:16	
showing 22:17	smoke 32:19,21 35:16 78:19 79:8	spoke 53:4 71:15 88:18 91:14	subsequently 68:21	
shows 60:9 73:2	90:21	spoken 92:2	successful 91:19	
sic 88:10 117:19	soap 77:12	SPS 81:22	sucked 53:16	
side 9:4 15:16 40:11,20 41:2 51:12 82:4 100:16 114:16 115:5 118:10,12	society 68:14,16 72:3 73:11,19	Square 2:11	suggest 20:19 50:24 51:7 91:23	
	software 81:22,23	stabilization 50:6	suggested 66:22	
	sole 14:17	staff 48:4	suggesting 66:25	
		stage 17:13	suggestions 69:22 75:13	
		stanchions 45:19		
		stand 21:14 115:16		
		standard 46:3		

15:4	synchronized	103:3	13:17 15:3,8,10	Tom 27:8
Sunday 17:18	120:25 121:3,4	terms 8:22 33:7	18:7 19:12,23	tomorrow 20:3
20:18,24 22:3	system 20:2 47:6	42:24 52:4 66:17	20:23 22:20 29:25	121:20,21
121:24 122:6,7	systems 40:17	71:16 87:21 88:19	34:14 38:12 55:22	tools 104:3 107:18
superseded 49:2,7	48:18	94:11 97:19,21	63:7 66:24 68:6,7	top 44:25 51:21
supervising 32:8	T	99:14 110:22	72:8 74:8 75:4	60:2,10 62:9,24
96:4	table 108:10	115:5 117:21	87:22 88:3,13	74:10,10
supervision 42:13	take 10:17 18:15	118:18	90:14 92:3,4	topic 90:15
supplied 72:22	31:18 38:7 80:3	terribly 74:5	97:16,20 98:9	torso 61:19 119:3
78:22	81:7,8,9 87:16	test 56:13,18	100:13 103:2	torso-warming
suppose 24:4 70:8	92:7 93:14,16	testified 23:14	110:24 111:22	46:19
114:24	103:23 108:15	98:10 113:24	112:13 113:15	tracer 78:20
sure 18:2 40:4	119:24	testimony 7:7,21	116:16 121:10	trainee 25:4,15,16
49:21 51:5 54:17	taken 1:17 4:4	12:24 14:11,20	third 16:9 96:14	27:11
54:24 55:10 56:25	20:11 22:11 49:17	16:17 38:24 57:7	third-party 12:9	trainees 95:19
79:23 89:25 91:15	74:20 92:12 123:6	123:6 124:5,8	thoroughly 20:8	training 25:22
99:12,18 103:5	124:6	testing 57:16,19	thought 27:16	93:18,23 95:6,9
112:21 118:10	takes 102:21	59:16 116:22	48:12	95:14
surgeon 24:21,23	103:13	tests 48:5,6	three 8:21 22:15	transcribed 124:7
24:25 39:13 40:2	talk 49:16	text 40:12 43:6	37:3 105:23 106:6	transcript 121:5
93:20 102:5 118:7	talked 68:25	thank 7:16 11:19	106:7	124:5,7
surgeon's 45:6	talking 24:13 51:25	11:21 23:11,16	Thursday 1:17 4:2	transcription 123:8
surgeons 24:7 95:6	72:4 99:11	27:24 28:3 37:4	123:6 124:6	125:7
95:10 96:23 97:2	tall 62:3	44:20 46:23 70:20	time 5:4 10:6 12:14	transport 52:18
surgery 26:25	tape 61:22 90:11,14	74:2 83:20 90:9	17:19 19:5,14	transportation
70:24 71:14 96:20	90:19 92:8	92:6,7 97:15	20:14 21:22 27:9	53:3
97:3,5,18 101:9	taped 61:22	109:21 120:12,14	27:10,12 29:17,20	transporting 52:20
102:23	Technical 47:7,16	120:19	29:23 30:7 31:9	58:6
surgical 39:11	48:19 49:2	theatre 33:9 40:18	31:14,14 41:8	trauma 96:2
50:24 51:2,9 52:8	telephone 20:9,12	45:24 48:4 54:18	46:4 54:6 55:11	trial 7:3,8 12:24
52:22 54:3 55:14	20:22 22:12	56:12 77:5 78:16	57:20 60:16 63:21	13:2 14:11,20
57:3,22 60:6 61:2	tell 26:23 28:7	83:3 85:14 89:24	67:9 69:19 70:2	15:19,25 16:15,18
85:17 95:8 102:16	53:12 62:5 63:23	96:3 101:17	71:15 78:12 84:10	17:24
104:11 108:7,10	91:8 93:18 96:12	102:19 104:10	87:16 88:12 94:3	tried 53:8 91:17
110:15 116:15	100:3	105:15,16 110:12	95:2 96:9,9 99:25	tries 47:21
surgical-site 119:9	telling 91:16	114:3	99:25 111:23	true 50:12 86:7
surprise 91:21	temperature 32:21	theoretical 116:17	117:24 118:3	123:7 124:7
113:2	33:17 35:17 49:17	116:19	119:12	try 14:9 53:2
surprised 53:11	50:7,22 51:23	theory 20:17	timing 22:19	trying 21:3 28:18
65:21	78:15,16 79:18,19	thereof 123:8	tinker 21:25	36:14 53:5
surveillance 58:10	89:12,16 101:16	thigh 61:20,25 62:2	title 104:24	TSG 5:9
58:22	105:20,24 106:15	thing 24:2 26:14	today 5:13 8:6	Tumia 43:12
susceptible 98:20	106:16,19,22	100:9 107:21	10:10,18 17:8,14	turn 44:22 63:14
suspended 44:8	108:7	things 26:2 56:11	18:12,12 20:3	65:5 71:4 72:25
45:18,18,20	ten-to 92:15	64:4 88:9 114:16	22:3 30:4 49:9	75:19 90:25 98:23
swear 6:7	tendon 96:17	115:6 117:5	89:9 90:10 92:22	100:5,9
switch 91:24	term 82:13,16 98:6	118:12	93:10 96:14 111:3	turned 50:2,3,3,3,4
sworn 22:20		think 6:18 8:13,23	Today's 5:3	76:12 99:22,24

Turning 104:21	17:17 36:6	verses 4:22	44:16 49:22 55:10	120:18,20,21
turns 20:25	unhappy 66:17,20	version 42:15	56:25 67:9 69:6	122:3,8
twenty-past 120:18	unidirectional	versions 116:5	89:7 109:25	website 34:22,24
two 4:9 12:16 19:5	34:17 40:13 41:17	versus 29:6	118:11 120:3,24	week 17:18 22:4
19:14 22:15 25:17	43:9,17 46:9	vertical 40:12,22	121:2,9,15	69:10 70:16
29:19,24 59:5,11	85:15 104:8,24	45:5 84:17 85:5	wanted 7:21 24:15	weekend 30:17
69:10 70:16 73:6	110:13	viable 98:18	107:21	weekends 29:19
83:24 94:4,5,6	unit 52:2 55:8	Victoria 1:24 4:5	wants 11:20	weeks 19:6,14
96:13 105:11	56:15 57:15 59:21	5:8 124:4,24	ward 95:24	30:10
111:7 116:4	117:13	video 22:16 34:20	warm 52:4 82:22	went 10:3 41:9 61:6
121:13	United 1:2 4:10,19	34:22 93:14	90:3 98:15	94:15,17,22
two-thirds 48:25	12:5,10,13,25	videographer 2:25	warmer 46:14	weren't 53:10 59:4
TX 2:18	14:21 16:18 92:19	4:7 5:9 6:2 22:8	warming 1:5 4:21	88:9 91:18
type 8:25 15:22	92:25 93:16 94:10	22:14 23:2 25:6	34:16 35:17,18	West 94:3
24:20 46:15 70:13	99:4 112:20	90:12 92:9,13	41:17 43:9,16	willing 30:20
78:4 97:5 118:22	units 55:4	112:10,13 113:4,8	49:18,25,25 50:2	withdraw 17:9,12
types 85:14 105:23	university 94:13,15	113:17 115:24	50:4,8,21 51:2,8	97:13
110:12	94:20,25	120:16,20 121:4,9	51:17,22 52:3	witness 2:9,12 6:8
typically 13:17	upper 61:20,25	121:11,13,17,25	55:12 60:11,13	6:24 7:3 15:19,23
97:4	62:2	122:3,8	62:11,22 82:11,21	15:24 17:5,8
<hr/>				
U				
UK 2:8,11 12:20,22	use 13:2 33:21	videophone 25:11	85:13,22 90:7	22:19 23:8 24:12
12:24 19:25 25:4	35:14 37:15,25	VIDEOTAPED	91:25 92:5 101:16	26:20 43:22 44:5
34:3	42:9 50:20 53:23	1:11 4:3	104:9,9,23 107:2	45:13,25 46:16,22
ultimately 67:14	56:8,12,18 58:14	view 32:15 69:23	107:22 108:6,23	48:8 49:13 51:17
99:22 100:19	62:11,14,15,16,20	visualisation 77:15	108:24 110:11	52:9,12 56:11
110:8	72:22 76:15 78:4	visualise 35:8	118:8,9,23 119:2	57:9 59:20 60:14
unable 50:20 52:19	82:6,17,18 85:7	104:11	wasn't 32:8 53:4	62:2,5 67:18
uncomfortable	86:24 113:21	visualized 105:21	58:23 59:17 83:5	70:21 73:5,8,12
65:22	118:23	visualizing 35:11	83:7	73:14,18,22 75:16
understand 6:13	useful 115:7,8	visualizing/visual...	waste 82:2,7,9	76:19,22 77:16
11:12,16 14:24	uses 58:22 63:6	35:9	84:19 92:3	83:13 84:9 89:11
18:17 21:24 22:5	usually 27:21 99:7	vitae 3:13 93:11	waste-heat 92:4	89:15,19,23 90:5
23:16 25:9 27:15	118:9	96:6	wasting 21:22	97:8,16 101:2
41:3 44:3 49:21	utility 88:4	volume 4:8 26:3	way 9:6 10:11,24	103:20 110:3
49:22 51:6 83:21	<hr/>	48:21 59:6 92:9	11:6,9 12:3,6 13:9	112:5 117:4
90:9 103:3,9	<hr/>	92:14 120:17	20:12 23:17,20	118:15 119:22,25
112:2 113:7	<hr/>	volunteer 28:21	24:13 28:19 35:11	124:5 125:3
understanding	<hr/>	35:13	37:3 38:9 41:9	witness's 38:24
7:14,17 34:7	<hr/>	W	48:25 51:10 60:18	witnesses 7:22 13:6
57:13 59:13 61:5	validation 47:5	waist 46:21 61:24	60:24 83:4,18	16:8
64:18 89:9 90:10	value 55:25 88:4	wall 40:22 41:4,7,8	124:12	wondering 80:13
96:21	values 81:14	45:7 62:20,22	ways 103:10	Word 70:13
understands 57:2	variation 10:19	63:7 84:17,25	we'll 90:19	wording 6:9
understood 90:2	vast 94:21 100:2	walls 40:14	we're 19:3,14,15	words 6:14 9:18
undertaken 77:4	velocity 91:5	want 10:16 18:11	21:3 22:10,14	15:7,12,15,21,22
unfortunately	ventilation 40:13	18:15,17 20:25	38:12 55:10 73:23	15:24 16:2,25
	47:6 48:18,19	26:14 30:14 34:9	82:8 92:15 96:5	29:10 34:9 39:7
	verbal 54:23		100:22 115:24	112:2
	verbatim 124:4,7			
	vernacular 76:16			

work 21:3 28:21,25 30:21 31:23 61:15 69:24 104:7	97:11,24 100:4,8 101:3 103:5,9,12 103:21 109:15,19	1st 4:2,4 5:3,5 22:17,18 1st,2016 1:17	24-minutes 22:9 253 70:12 27 3:12 291 75:4	477 75:9 491 74:8,13 75:5,8 75:20 4th 67:23 68:18 71:12
worked 117:20 118:25	109:22 110:7 112:6,12,15	2	3	5
working 69:11 82:14	113:14,19 115:22 116:25 119:16	2 3:13 92:14 96:7 109:17 115:23	3 125:7 30 40:15 41:4,9 2,000 81:8 2,000,000 80:23	5.22 122:9 55404 2:22 55415 2:15 5GS 2:11
works 88:11	120:11 121:7,10	2,172,000 81:3 2,173,000 80:23,25	391 48:11 392 30:3,15 394 67:23 70:22 395 70:10	
worry 113:16	121:12,22 122:2	2,174,000 81:5,8 2000 31:19 78:3 2002 43:11 2005 25:20 95:4 2007 49:5 2010 31:9,14,16,19	3M 2:16 4:22 5:15 12:3 13:5 14:3 110:21,24,24 111:2,5,9,16 112:7,22 114:10 117:16,17,22	
wouldn't 59:8 74:25 87:3,6 91:13,20	0 0.05 110:6 0.3-micron 78:20 00 109:15 001 109:16 03-01 48:19	1 1 3:12 4:8,8 26:3,4 26:6 40:22 41:14 47:10,15,15 92:14 1,000 81:9 1,000-fold 108:22 116:21 117:5 10th 19:16 63:20 11 22:9 11.02 4:6 5:4 1105 70:14 111 3:8 113 3:13 115949 1:25 117 123:5 124:6 118 3:9 119 3:10 12 47:4 120 3:11 121 47:10,15,16 13 88:22 124:25 149 38:8 15-2666 1:7 4:25 1616 2:21 17th 30:18 18 42:14 94:23 18th 4:16 30:18 1970 4:16 1975 4:15 1AE 2:8	4 4 47:4 71:9 4.37 92:11 406 28:4 65:6 104:22 406-409 65:12 407 44:23,25 51:15 74:6,12,13 75:22 76:25 408 80:9,16 81:24 84:15 109:14,20 409 28:5 65:6 85:11 411 26:15,22 40:5,9 41:14 100:11 412 36:20,21 413 26:15,22 50:18 52:15 426 71:4,5,20 428 71:5 72:25 74:2 74:4 430 63:14 70:6 431 2:14 432 64:6,10,22 65:9 439 80:16,19,25 440 80:16,19 4409 2:18 450 64:6,11,22 65:9 456 75:5 476 75:8	6 63:5 600 70:7 7 77006 2:18 7YA 4:6 8 8.30 20:25 85 2:7 89 3:8 8th 8:20 10:4 9 90 40:21 90-degree 61:7 9th 19:15
X				
X 3:4				
Y				
year 8:20 56:22 73:13 93:22 94:5 94:24	11.02 4:6 5:4 1105 70:14 111 3:8 113 3:13 115949 1:25 117 123:5 124:6 118 3:9 119 3:10 12 47:4 120 3:11 121 47:10,15,16 13 88:22 124:25 149 38:8 15-2666 1:7 4:25 1616 2:21 17th 30:18 18 42:14 94:23 18th 4:16 30:18 1970 4:16 1975 4:15 1AE 2:8			
Z				
Zealand 25:24 93:24	2015 96:15 2016 4:2,4 5:3 2025 49:3 22 3:6,7 221 38:9 222 48:11,15 223 48:24 225 49:4			
Zimmerman 2:22 3:8 5:17,17 11:21 11:22 13:15,17,23 14:6,15 15:3 18:21 26:8,10 30:22 37:16 38:17 38:22 44:23 49:11 55:16 56:10 57:6 58:18 59:19 67:5 75:14 84:8 92:17				